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Factors Associated With Research Anxiety of Human Resource Education Faculty in Higher Education.

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**FACTORS ASSOCIATED WITH RESEARCH ANXIETY OF HUMAN
RESOURCE EDUCATION FACULTY IN HIGHER EDUCATION**

A Dissertation

**Submitted to the Graduate Faculty of
The Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy**

in

The School of Human Resource Education and Workforce Development

by

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December, 2001**

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In loving memory of:

**Cherry Higgins
&
Margaret Walter**

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ABSTRACT

The dissertation examined factors associated with research anxiety of university faculty members. Faculty at research universities have, in the past and at the present, had to deal with pressures associated with roles as researchers, teachers, and service initiators (Miller, 1994). The “publish or perish” atmosphere that accompanies most research university faculty positions often generates questions regarding confidence in one’s ability to not only conduct meaningful research, but also to develop a solid and statistically sound research study.

The purpose of the study was to determine if certain factors explain possible causes of research anxiety in higher education. These factors included the educational preparation faculty members received during their graduate work, personal characteristics, and the professional environment encountered by the faculty members at their university. The objectives of the study were to: 1) Determine selected demographic characteristics and perceptions concerning the professional environment and educational preparation of faculty members. 2) Determine research anxiety levels of faculty members. 3) Determine if significant correlations exist between selected demographic variables and the research anxiety of faculty members. 4) Determine if selected variables explain significant portions of variance in research anxiety in faculty members.

The participating faculty members were for the most part male and half were full professors. The mean age was 52.33 and all but one held a doctorate. Relationships between selected demographic characteristics and The Higgins-Kotrlik Research Anxiety Inventory revealed moderate correlations with rank, the number years employed in

higher education, and experience teaching research methods courses. There was a low correlation between the inventory and the presence of a formal research mentoring program, age, and experience teaching statistics. The regression analysis with research anxiety as the dependent variable revealed that the faculty members' educational preparation, years employed in higher education, and professional environment explained 48% of the variance.

This study revealed that there is anxiety in higher education with regards to scholarly productivity. Analysis suggested that research anxiety may be lessened by certain personal characteristics such as holding a higher rank at a university, years of experience in higher education and advanced age.

CHAPTER I: INTRODUCTION

The latest Carnegie Foundation (2000) categorization of the nation's institutions of higher education increased the numbers of Research Extensive and Research Intensive Universities (<http://www.carnegiefoundation.org/Search/SiteSearch.htm>). This accretion in numbers also increased the quantity of faculty members who are expected to produce scholarly research. Institutions that enjoy an abundance of scholarly research through faculty production also enjoy a heightened reputation as universities on the cutting edge of scholarly issues. This enables these universities to bring in larger grant amounts as well as larger student numbers (Rice, 1997). Therefore, research production has become a benchmark of national and global prestige and has also been a key variable for attaining promotion and tenure for many university faculty members. Because of the heightened emphasis placed on scholarly productivity through research, a study which explores possible factors that may promote anxiety associated with the scholarly research productivity of faculty members may be instrumental in defining the means to increase research productivity and, at the same time, easing the research anxiety of faculty members.

Faculty members at research universities have, in the past and at the present, had to deal with pressures associated with roles as researchers, teachers, and service initiators (Miller, 1994). The "publish or perish" atmosphere that accompanies most research university faculty positions often generates questions regarding confidence in one's ability to not only confidently conduct meaningful research, but also to develop a

solid and statistically sound research study. The pressures do not stop there, however. Once a study has been developed and conducted, the researcher's next goal is persuading editors of reputable journals to publish his or her findings. Generally, this means sending a manuscript off for a blind, peer review of the study. Anxiety can certainly be expected when one's work is judged and critiqued by peers. Further, this critique may hold the key for future promotions and salary increases, thus elevating possible anxiety for the researcher. It becomes paramount that the researchers be confident in the methods of research and the appropriate application of statistics in analyzing data gathered for the study.

Faculty members with longstanding success or integrity in research are often admired by other faculty and students as being on the cutting edge of their field and are regarded as knowledgeable about most issues in their field. These faculty members are seen as more powerful educators and often serve as a frame of reference for junior faculty members or others who are developing their own research agenda (Levine, 1997). Apprehension often accompanies new faculty members when they accept an appointment at a university. They begin to compare their worth and capabilities to others in the department by looking at levels of research excellence of their new colleagues. Perhaps, due to the principle of *practice makes perfect*, the established researcher appears to be more comfortable with the research process as well as the methods used to deduce significant inferences and generalizations regarding certain sectors of the population. This perception could also be attributed to a solid foundation in research methods and statistical procedures that successful faculty members gained during

graduate work. Just because a faculty member appears to be successful does not, however, mean that anxiety does not hamper this scholar. The pressures of higher education, especially in Research Extensive and Research Intensive universities, may make success difficult for those who either do not feel competent or do not possess sufficient skills to conduct exemplary and valid research (Thompson & Dey, 1998).

A 1995 study reported that 33 percent of faculty experienced “extreme” stress in the two years prior to their analysis of faculty stressors (Sax & et al. 1995). That study surveyed faculty on matters of life ranging from job pressures and home pressures, to health issues.

Anxiety, as defined by the 1994 edition of Webster’s Encyclopedic Unabridged Dictionary, is “distress or uneasiness of mind caused by fear of danger or misfortune”(p. 96). For the purposes of this study, the definition will take on a more empirical tone of “danger and misfortune” as it relates to professional output and not to a life and death situation. The “dangers and misfortunes” are thus related to not receiving promotion and tenure, stress related to a lack of confidence in one’s ability to conduct valid and reliable research, departmental demands, and the anxiety related to peer reviews in the publishing process. The same dictionary defines stress as “fear that disturbs or interferes with the normal physiological equilibrium of an organism (p. 1882).” Anxiety and stress will have a synonymous connotation and will be used interchangeably.

Past studies have examined different types of anxiety that a faculty member may encounter on the job, such as computer anxiety, math anxiety, and social anxiety. Many of these studies have documented that stress has influenced the amount and the quality of

scholarly productivity as well as overall job satisfaction and even health (Gmelch, Lovrich, & Wilke, 1984). It has been noted that many in higher education place more value on the teaching aspect of the job and are not so interested in the research aspect of education (Levine, 1997). This notion may place an employee in a quagmire, quite early in his or her career, as many universities place high priority on success in both research and teaching to secure promotion, tenure, and merit pay (McElhinney & Fleming, 1997). Not having a clear definition of what is expected of a faculty member, in terms of research, can be an impetus for anxiety. When perusing the classified advertisements for employment in higher education, one finds that almost every job description is accompanied by the mission statement of the university or college. These missions almost always state that a prospective applicant should be establishing, or must have already established, a research agenda related to the position. This requires applicants who have not given thought to a research agenda to do so, as well as to put together a portfolio that documents this agenda to enhance their chances of attaining employment.

Recent studies have also delved into the effects that stress may have on faculty health. It is one thing to lose a promotion, but an altogether different thing to lose one's health. High levels of anxiety have been linked to serious health problems such as physiological, psychological, and behavioral disorders (Blackburn, Horowitz, Edington, & Klos, 1986). These health problems are not only inherent in Corporate America, but also to academia. Studies also link "burnout" to anxiety, which leads to a stagnation in scholarly productivity as well as social seclusion. Depending upon severity, these are not small problems which can be associated with anxiety (Libby & Walz, 1987). Anxiety in

higher education can affect faculty members' performance on several different fronts. It may impede scholarly productivity, lessen perceptions of job satisfaction, and even negatively affect the health of the faculty member.

Statement of the Problem

Anxiety generated from the pressures to produce in higher education can negatively influence virtually all aspects of life. For this reason, it is important to look closely at possible causes for anxiety associated with the profession. Possible breeding grounds, for anxiety, could very well lie in the faculty member's proficiency in research methodology and statistical procedures, graduate experiences, or departmental expectations. If indeed there is any level of anxiety associated with these possibilities, perhaps educational institutions can modify programs to better equip faculty with the facilities to conduct valid and reliable research. However, knowing where a problem exists is not good enough to remedy the situation. It is also important to take action to ensure future generations are removed, even if partially, from the "dangers and misfortunes" of working in higher education.

Certainly, job performance is merely one aspect of life in which anxiety plays a role. There seems to be more and more documented evidence that stress does indeed affect the ways in which faculty members and other professionals perform on the job. Workplace stress, as it relates to faculty and administrative performance, has been the subject of several recent studies, but few of these studies have focused on anxiety created by the pressures of academe as they relate to proficiency in educational research and statistical methodologies. The review of literature in chapter 2 states that faculty members, especially new employees, may be experiencing low to high levels of anxiety due to research related factors such as

their quantitative or qualitative research skills, educational preparation, or their professional environment.

Purpose of the Study

The purpose of this study was to determine if certain factors explained the cause of research anxiety in higher education. These factors include the educational preparation faculty members received during their graduate work, personal characteristics of UCWHRE faculty, and the professional environment encountered by the faculty members. These factors will be measured through the use of a instrument comprised of three scales and a section containing demographic questions. The survey was developed via an intense synthesis of the literature pertaining to faculty anxiety in higher education.

Objectives

1. Determine selected demographic characteristics (gender, age, rank, highest degree held) of university faculty members and perceptions of the professional environment, and educational preparation.
2. Determine research anxiety levels of university faculty members.
3. Explore if significant correlations exist between the independent variables (educational preparation, selected personal characteristics, and professional environment) and the research anxiety of university faculty members.
4. Determine if selected variables (educational preparation, personal characteristics, and professional environment) explain significant portions of variance regarding research anxiety in university faculty members.

Limitations

The limitations of the study are that this project examined only University Council for Workforce and Human Resource Education faculty members and therefore cannot be generalized to any other population. Data was collected using an instrument designed to determine perceptions of faculty regarding their personal experiences with research in the profession. As with any survey research, one must allow for a certain amount of error to be present when analyzing personal judgements and perceptions.

Definition of Terms

The following operational definitions of selected terms were established for the study using the information found in the literature review of relevant research. All definitions without citations were developed or modified by the researcher.

1. Anxiety - distress or uneasiness of mind caused by fear of danger or misfortune (Webster's Encyclopedic Unabridged Dictionary, 1994).
2. Stress - fear that disturbs or interferes with the normal physiological equilibrium of an organism (Webster's Encyclopedic Unabridged Dictionary, 1994).
3. The University Council for Workforce & Human Resource Education - a nonprofit organization representing the nation's leading universities. The Council provides leadership for teaching, research, and service initiatives in vocational and technical education.(<http://euro.hre.uiuc.edu/hrewebsite/resources/ucve>)
4. Doctorate/Research-granting Extensive Universities - Institutions that typically offer a wide range of baccalaureate programs, and that are committed to graduate education through the doctorate. During the period studied, they

awarded 50 or more doctoral degrees per year across at least 15 disciplines
(<http://www.carnegiefoundation.org/Search/SiteSearch.htm>).

5. **Doctoral/Research Universities-Intensive:** Institutions that typically offer a wide range of baccalaureate programs, and are committed to graduate education through the doctorate. They awarded at least 10 doctoral degrees per year across three or more disciplines, or at least 20 doctoral degrees per year overall (<http://www.carnegiefoundation.org/Search/SiteSearch.htm>).
6. **Scholarly productivity -** Scholarly works created by a faculty member including articles accepted by peer reviewed journals or books/chapters published.
7. **Peer review -** A review process by which peers in a given field review and critique articles for publication.
8. **Blind peer review -** A review process in which peers in a given field review and critique articles for publication. The authors do not know who is reviewing their manuscripts.
9. **Double blind review -** A review process in which peers in a given field review and critique articles for publication. The authors do not know who is reviewing their manuscripts and the reviewers do not know who authored the manuscript.
10. **Portfolio -** A file or folder containing samples of one's best work, accomplishments, or projects compiled to be shown to prospective employers or administrators to quantify employment or promotion and tenure advances.
11. **Research Methodology -** Employing a scientific investigation in which one or more independent variables are manipulated, other relevant variables are

controlled, and observations are made regarding the effects of the manipulations on the dependent variable(s) (Ary, Jacobs, & Razavieh 1996).

12. Statistical Procedure - Methods used to attain relevant and correct measurements regarding correlations, explanations, predictions, comparisons, and other estimates of sample and population.
13. Burnout - Fatigue, frustration, or apathy resulting from prolonged stress, overwork, or intense activity.

Theoretical Framework

General Anxiety

The National Anxiety Foundation (1999) in Lexington, Kentucky posts on its web page that everyone has or will experience anxiety at different stages in life, and that it can be quite normal in certain instances (<http://www.lexington-on-line.com/naf.html>). A positive side to anxiety is that it may keep one busy doing things that aid in success. For example, having anxiety due to the pressures to publish research for promotion and tenure purposes may prompt faculty members in higher education to avidly pursue their research agenda. But, the foundation also relates that sometimes anxiety can become a detriment to one's progress in life. High levels of anxiety can create roadblocks that can cause health problems or prevent one from attaining success in any field or profession. Since the reputation of prestigious research universities depends on the amount and caliber of research produced within the institution's hallowed halls, faculty members find themselves in the midst of a rubber band effect, juggling research endeavors and teaching assignments.

Educational studies in the past have generally concentrated on two types of anxiety, trait anxiety and state anxiety. The difference between the two is that trait anxiety deals primarily with the nature of being, in that a person is prone to anxiety in all or many phases of life. State anxiety refers to situational anxiety, in that a condition is favorable to cause this emotion in certain people at a particular time, such as pressures to publish scholarly work within a department of higher education (Oetting, 1983).

Research anxiety, in this study, falls under the auspices of state anxiety and refers to the characteristics which a faculty or member perceives as discomfoting, to the extent that productivity may be arrested. If research anxiety is approached as a case of state anxiety, then it is not perceived as a disorder that must be treated with medication or serious counseling, but which can be corrected through proper instruction and indoctrination in the methods of research. This indoctrination may occur in graduate programs or in mentorships upon attaining employment as a junior faculty member at a university. If faculty members do not perceive themselves as having a solid background in research methodology, there is a possibility that fear of rejection or simply the fear of using the wrong statistical procedure for a study to be peer reviewed may cause enough anxiety to decrease the amount and level of scholarly works produced.

The relationship between research anxiety and scholarly activity has practical implications in the field of education. The possibility of high anxiety levels that result from perceived inefficiencies in research methodology or statistical procedures may have a direct impact on the amount and quality of scholarly productivity. The concept of research anxiety may have its roots in faculty members' educational experience during

their graduate program component, but may also be due to a lack of practice or effort on the part of the faculty member. Also, depending on particular departmental expectations, restrictions placed on mentoring or collaboration with seasoned researchers may propagate research anxiety. It is no secret that pressures associated with the publish or perish atmosphere in higher education weigh heavily upon the promotion and tenure process of faculty members (Pettitjohn & Udell, 1991). These pressures may cause job dissatisfaction due to poor preparedness in graduate programs in the areas of research methodology and statistical procedural knowledge, high departmental expectations regarding research, and perceived personal barriers, like gender and ethnic origin.

Faculty Anxiety

A higher education position is accompanied by multidimensional tasks. Faculty members are expected to engage in scholarly activity, which is usually equally or not-so-equally divided among research, teaching, and service (Miller, 1994). Those entering the profession or looking for transfer possibilities at other universities will notice how important an established research agenda is in meeting the qualifications for many of the positions, especially those positions at Research Extensive and Intensive Universities (Carnegie Foundation, 2000). Almost all of the position descriptions advertised in such periodicals as the Chronicle of Higher Education include a statement on research expectations. Competition among universities concerning funding has become intense and research agendas defining individual universities and departments are becoming trademarks for recruiting top students. The prestige that accompanies noted research

programs places pressure on faculty members to stay abreast in the field as well as to maintain active research ventures.

Miller (1994), described an engaged teacher as one who is knowledgeable or informed, and stated that this knowledge comes from research. This means that an effective teacher should also be an effective researcher, which may stretch the teacher in several different directions at once during the academic year. Also, most faculty members at universities handle assignments in graduate programs, further spreading the workday among research, undergraduate responsibilities, and aiding students through the thesis and dissertation process. Kelly and Warmbrod (1985) found that the most productive faculty members were full professors at high-prestige universities where the pressures of faculty productivity outweighed that of their counterparts at four-year colleges. It makes sense that if there is more pressure to produce at universities, then research anxiety may be more prevalent.

To address the future of research as well as the problems and concerns associated with research agendas in higher education, four major universities participated in a 1997 conference designed to discuss the research mission of public universities. During the introductory speech, Mabel L. Rice, the Director of The Merrill Advanced Studies Center, noted that universities are experiencing an era of intense pressure on the research mission of higher education. The sources of this pressure are multiple and are closely associated with a reduction in fiscal resources, scarcity of resources, and more competition for funding. As a consequence, university-wide pressures on academic administrators and researchers to express knowledge via creative and innovative research

are spawned. Rice stated that most faculty members employed at prestigious research universities generally have a demanding teaching load to accompany their research expectations. These faculty members usually instruct graduate students as well as undergraduate students, meaning that gears must be changed during the course of the day. Graduate students are seen as future researchers and are generally prepared to engage in research where a more didactic approach is usually implemented in undergraduate instruction. This scenario may add to the frustrations of time restraints and job expectations of the faculty member.

Stress and workplace anxiety have become an accepted part of higher education. Several researchers examining selected characteristics of faculty members have found that faculty experience anxiety due to research pressures, teaching loads, and time restraints associated with the job environment (Thompson & Dey, 1998). Researchers examined what faculty members perceived to be causes of workplace anxiety. Several variables overlap in the studies and most seem inherent to the field, like teaching loads and restricted funding. One variable that has become commonplace in studies is the pressure associated with university and departmental expectations regarding productivity. This variable may be one that can be eased, or negated altogether, through effective instruction and mentoring. A faculty member's individual research agenda is an important factor in the promotion and tenure process as well as in hiring practices. It would be beneficial to the field to find out where potential causes of anxiety related to scholarly productivity exists and to explore measures to ease or alleviate it.

Theoretical Model for Research Anxiety

Figure 1 displays three categories of variables that may combine to elevate levels of research anxiety of faculty members. The first category, *educational variables*, includes possible independent variables that have roots in the actual graduate and pre-employment experience of the faculty member. These variables are confidence in research practices, confidence in statistical procedures, math competence, computer competence, number of hours or credits in research/statistics courses taken in a graduate program, and the research prowess of the chair of the graduate committee. In essence, this category explores the faculty members' preparedness upon entering higher education. Also, it looks at how faculty members perceive their math and computer skills upon entering a position in higher education. Blackburn, Horowitz, Edington, and Klos (1986) noted that faculty members who received strong or adequate instruction during their graduate work may experience less stress when engaging in research endeavors. Lower anxiety levels could lead to higher confidence levels in their professional environment and that faculty members with higher self-esteem may become better at reducing stress levels from the pressures of higher education, adding further evidence that a well-grounded graduate program may stem the propagation of research anxiety.

The second category includes *personal characteristics* that may add to research anxiety. The individual's attributes could manifest themselves in the form of established perceptions in higher education and society of gender, age, and ethnic origin. Past researchers have noted that female and junior faculty members are lagging behind experienced male faculty members in research productivity (Gmelch, Wilke, & Lovrich,

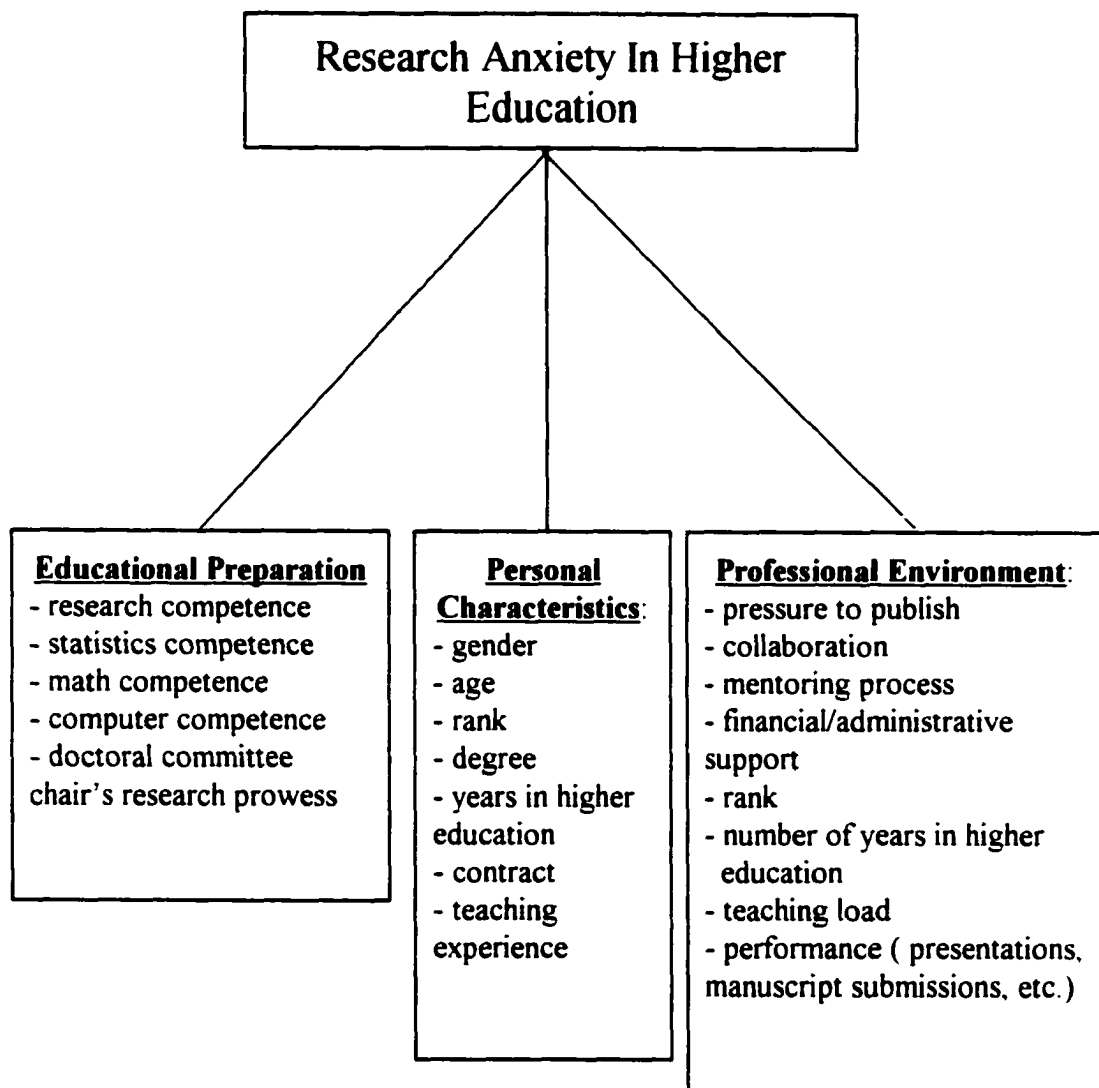


Figure 1. Theoretical model showing the hypothesized contributors to research anxiety

1986, Smith, Anderson, & Lovrich, 1995, Sax et al., 1996). Also, other authors have noted, due to job related stress, that minority faculty members perceive themselves to be behind in the productivity element of higher education when compared to their white colleagues (Smith & Witt, 1993, Thompson & Dey, 1998).

The third category proposes that characteristics associated with the *professional environment* of faculty members may cultivate research anxiety. These characteristics include the pressure to publish in particular departments, options of collaboration with other researchers inside and outside the department, mentor relationships, financial/administration support of research efforts, rank, and class load (Levine, 1997). Higher education is usually broken down into three components, namely teaching, research and service. This category explores how environmental elements possibly add to anxiety when it comes to research productivity mixed with teaching and service.

Depending on the Carnegie rating of a chosen institution, research may encompass up to 60% of the expected work load of a faculty member. Holding a position at one of these esteemed research institutions requires ample knowledge of research and statistical procedures in order to be successful, in the administration's view. One may be esteemed as a great teacher of a subject, but receive little recognition from the administration due to a lack of or poor scholarly research productivity.

The level of success in these three areas may be decreased or limited by anxiety caused when a faculty member is not confident in his/her ability to design and carry out meaningful, accurate research (Seiler & Pearson, 1985). This anxiety toward research productivity may manifest itself in the graduate program of the prospective faculty member, be an inherent personal characteristic, or may be enhanced in a departmental atmosphere that does not encourage collaboration in research affairs or initiate a mentoring program for junior faculty. Understanding where research anxiety originates

and how it is being propagated during the professional experience of a faculty member could provide pertinent information for administrators to better prepare and support potential and present faculty members in the area of research.

CHAPTER II: LITERATURE REVIEW

Scholarship and Research Expectations

The 1990s was a decade of increased productivity of published research in higher education (Sax, Astin, Korn, & Gilmartin, 1999). Miller and Sandman (1994) defined scholarship in higher education as multifaceted. Scholarship includes teaching, research, and service. Excellence in scholarship requires devotion to all three concepts. Miller and Sandman explained that most universities describe scholarship as being able to create or produce new knowledge through research or taking previous knowledge and implementing it into the classroom. It is a widely held belief that research plays a major role, along with teaching, in scholarship. Sorcinelli and Davis (1996) examined the multidimensional role of the faculty member at research universities and noted the struggles associated with blending research and teaching within higher education.

Sorcinelli and Davis (1996) stated that a movement is under way, from coast to coast, in which administrations at research universities are establishing rewards systems to recognize both exemplary teaching and research. This movement mirrors Miller and Sandman's (1994) study in that scholarship is multifaceted and research university faculty are required to extend their teaching capabilities to attain these awards. Sorcinelli and Davis (1996) have pointed out that research and teaching are becoming viewed as complementary and not competitive concepts on research university campuses nationwide. Research universities already have placed a great deal of emphasis on research, and now with more importance placed on teaching, time restraints become a

factor in the amount of scholarship a faculty member at a research institution can produce.

Levine (1997), in his meta-analysis study concerning research and teaching, posited that many research universities placed more weight on research and teaching excellence as the path to promotion and tenure. Again, this study pointed to limitations of time and energy of the faculty member to effectively handle the role of researcher and teacher. Gmelch (1996) reported that there is a definite need for time management training for faculty members. He stated that not only are faculty members required to be productive in the area of research, but they are expected to be good teachers as well. This dual responsibility is further hampered by interruptions and meetings throughout the day adding to the frustration associated with their jobs.

Kelly and Warmbrod (1985) examined the research element, i.e. number of articles published over a two-year period, as it was associated with teaching and service. They found that there was a significant relationship between research productivity and the type of institution where a faculty member was employed. Those who held a position at research universities generally were the most productive, whereas those at four-year colleges were less likely to be as productive. The researchers attributed this finding to the job environments encountered at the schools. Departmental and university expectations regarding productivity were higher at research universities. They found that adequate preparation in graduate programs (research methods and statistics) and actual hands-on experience in research activities, along with research mentorships and

collaboration, were the major factors in determining whether a faculty member would be a productive researcher.

Olsen (1994) studied how financial support influenced research. He claimed that research and grant money were closely related since it takes money to produce good research and it takes good research to produce grant money. Therefore, schools that have established a solid research reputation will most likely be the institutions that garnish the most funding for research. Also, research universities tend to be limited in the amount of merit placed on teaching, which usually is second to research in this particular educational environment. With dual role expectations becoming the norm, faculty members have found themselves stretched between scholarly productivity and teaching. Bentley and Blackburn's 1990 study, examining the changes in research performance in higher education, reported that emphasis on research has increased across the board in higher education. They also noted that a stratification of institutions, due to increases in research expenditures, threatened to create an elite group among universities that could afford to continue to produce quality research.

Sax, Astin, Korn, and Gilmartin (1999) examined the characteristics of the university setting. The results showed that campuses are currently populated with an older faculty who hold doctorate degrees and also with more females holding faculty positions (a 7 percent increase since 1989). Technology has impacted the way faculty members communicate with each other as well as how research is done. Results show that younger faculty members use technology, possibly due to the comfort level of newer faculty with computers. The researchers also reported that job satisfaction has increased

since the 1980s, but at the sacrifice of personal lives. Thompson and Dey (1998) reported that the pressures experienced by faculty members at research universities make it difficult for those who either do not feel competent or do not possess sufficient skills to conduct exemplary and valid research.

Anxiety and Education

The study of anxiety is not a new query in our society. Before the 1980s, much of the research concerning anxiety was conducted in high profile occupations such as the medical field and air traffic controllers (Grant, 1991). According to Theodory and Dey (1985), many research studies have based their projects on research from the 1960s. The majority of psychological studies examined one of two types of anxiety inherent in society (Oetting, 1983). In 1968, these types were labeled trait and state anxiety by Charles D. Spielberger. In the late 1960s, Spielberger defined state anxiety as: “a transitory emotional state or characterized by subjective feelings of tension and apprehension...” (Gaudry, Vagg & Spielberger, 1975, p.331). Trait anxiety encompasses the whole being of a person and seems to be present at all times regardless of the situation, whereas state anxiety is only present during specific situations. Time seems to be the variable of focus. Trait anxiety is chronic and state anxiety is time and place specific. There may be occasions in which trait anxiety affects faculty in higher education, but state anxiety, because it is situational, may be a controllable phenomenon (Oetting, 1983). Also, Oetting (1983) noted in his study that state anxiety can be a compilation of certain events that can coincide to create anxiety, such as job load, time restraints, and resource limitations. When a person perceives these variables to be

present, anxiety may also be present. A 1980 article by Crase noted that not until the mid 1970s was there pressure placed on faculty regarding research productivity. Until the emergence of this emphasis, faculty mainly dealt with low student morale and enrollment, financial restraints, and shifting career patterns. The added emphasis of research productivity compounded the problem of job associated anxiety within the university setting. Promotion and tenure soon became closely related to faculty productivity. Anxiety associated with the pressures to publish research coupled with teaching assignments began being a constant variable in research examining faculty characteristics.

Anxiety has been labeled as one of the key psychological variables in the field of education (Tobias, 1979). Research in the 60s ran into a roadblock when prominent scientists claimed that research on anxiety in education could not be proven from a statistical point of view. Therefore, research was quite scarce until the mid-70s and even then, most of the research centered on effects of the educational environment and varying teaching methods on the learner (Tobias, 1977). Though there are studies examining the effects of stress and anxiety in general, very few studies break down the condition in academe (Gmelch, Wilke, & Lorvich, 1986). Relevant research either has examined anxiety as it relates to instructional methods in the classroom or compares anxiety scales and other instruments (Tobias, 1979).

Almost every study examining faculty members and their professional/personal environments finds that stress plays a major role in scholarly productivity and job satisfaction. The fact that publication performance has increased across the spectrum in higher education since the 1970s has given rise to a heightened sense of anxiety in the

field (Bentley & Blackburn, 1990). Burden (1982) reported that instructors were finding it difficult to separate their occupation from their home life. The researcher found that a majority of faculty members perceived an overlap between their personal and professional lives and that one affects the other. If there was a negative perception associated with one's job, this often led to problems at home. In his study, Burden found that professionals in their earlier years of teaching had more trouble separating their professional life from their personal life.

Studies researching the causes and effects of job related stress and anxiety have been conducted. Past studies examining faculty characteristics and perceptions have shown researchers that stress enters the picture in higher education from several different fronts (Sax, Astin, Korn, & Gilmartin, 1999; Sax et al., 1996; Astin et al., 1991). Teaching, research and service have generally been the three professional responsibilities of academe, and these areas incorporate stressors such as teaching loads, research productivity expectations, administrative and routine duties, long hours, self-expectations, professional development, procurement of funding, salary, promotion and tenure, family time, and publishing (Marcy, 1996). Theodory and Dey (1985) reported that when a faculty member perceives the pressures and demands as excessive, there tends to be a decrease in confidence and job performance. Also, anxiety has been examined as it relates to such concepts as productivity, mental and physical well-being, job satisfaction, and life contentment (Keinan & Perlberg, 1987). Several of these studies have shown that anxiety can negatively affect the ways in which we conduct

business, be it in a corporate or educational environment (Richard & Krieshok, 1989; Perlberg & Kremer-Hayon, 1988; Seiler & Pearson, 1985).

Gmelch, Lovrich, and Wilke (1984) found that high self-expectations and work overload were causes of stress along with the pressures associated with the publication process. The researchers examined comparisons of faculty stressors across academic fields and reported that teaching presented the faculty members with more stress than research and service. The researchers also found that the rewards structure of universities may cause anxiety for faculty members. They reported that 60% of the stress encountered by the faculty members involved in the study came from their profession. The major stressors in their study came directly from issues of limited time and resources. A later study by Gmelch, Wilke, and Lovrich (1986) uncovered new stressors in higher education that had either been overlooked in the past or were not recognized as possible stressors. The university recognition system, professional identity, and student interaction were deemed as contaminants to faculty stress levels and appeared to be unique to higher education. They found that those most at risk of falling prey to anxiety were younger, nontenured faculty members. Marcy (1996) and Gmelch et al. (1986) also found that junior faculty members, especially those who were untenured, experienced more job related stress and as a consequence experienced health problems more frequently.

Sax et al., in a 1996 study, named 17 stressors that faculty members in higher education felt increased anxiety levels in their professional and private lives. Their findings revealed that 33% (N = 59,933) of faculty members at 384 institutions of higher

education experienced high levels of stress from 1993 to 1995. Among the top stressors were time pressures, teaching loads, and research /publishing demands. Interestingly, several stressors decreased with age including time pressures, publishing, and personal time. The researchers conducting this study reported a decline in interest in research on behalf of the faculty involved in the study from 1989 to 1995, revealing more emphasis upon teaching. In a 1999 follow-up, Sax et al. found a new stressor in the field of higher education: new technologies. More than two-thirds of college and university faculty members reported that the pressures of keeping up with new technology were causing stress. Of the participating faculty members ($N = 33,785$) employed at 378 institutions of higher education, only 35% reported using the Internet for research purposes, but there was a clear prominence of computer use among younger faculty members.

Kelly and Warmbrod's (1985) study of agricultural education faculty reported three factors that may be stress producers which inhibited research productivity. These factors were lack of meaningful preparation, lack of resources, and lack of administrative support. A qualitative study by Austin and Pilat (1990) found through interviews that anxiety was imbedded in higher education, affecting faculty members' private lives, productivity, and relationships with students. The authors stated that in research universities, a great emphasis is placed on the value of merit, including one's success being judged by a publication record. Austin and Pilat suggest that many of the newly robed Ph.D.'s take positions in comprehensive or liberal art institutions where the teaching load is much heavier than the research load. Since their graduate careers were influenced more by research endeavors than teaching assignments, their teaching skills

may not have been adequate to handle the class load. Additionally, new faculty members at research universities may be overwhelmed by their multifaceted role, which can cause a great amount of stress to accompany their new positions in higher education.

Astin et al. (1991) found similar reactions to pressures encountered at research universities and four-year colleges. The researchers reported that stress created by the pressure to publish and to generate grants was far more prevalent in universities than in two and four year colleges where teaching load was seen as the most significant stressor. Also, the researchers reported that faculty employed at public colleges were more likely to experience stress related to publishing and grant generating than their private counterparts. The authors also found that the most common sources of stress in academia were time restraints, lack of a personal life, teaching load, household responsibilities, and committee work, in that order. The researchers revealed that students were not a major stressor in respective faculty occupations. Conversely, a study by Grant (1991) found faculty employed at a community college reported that the students were the main focus of faculty stress, hence the division between research universities and four and two-year colleges. Sax et al. (1995) also reported that the student element had made an appearance as a stressor in research universities due to the implementation of progressive teaching methods that encouraged the involvement of students in the teaching/learning process.

A 1995 study by Smith, Anderson, and Lovrich, reported that 80% or more of the U.S. workforce experiences anxiety, but that little is understood about stress and anxiety on a macro-scale. Their study, which examined the relationship between rank,

gender, discipline, and personality type on faculty stress, explained that our society generally views anxiety on a personal basis and used a 1970 quote from J.E. McGrath to show how we believe anxiety and stress builds in our experiences throughout life:

There is a potential for stress when an environmental situation is perceived as presenting a demand which threatens to exceed the person's capabilities and resources from meeting it, under conditions where he expects a substantial differential in the rewards and costs from meeting the demand versus not meeting it. (p. 4)

Smith, Anderson, and Lovrich (1995) reported that a significant number of university faculty experienced stress related to their profession and that work overload was the main contributor. Also, the researchers noted that stress in academe was as prevalent as in other professions.

Marcy (1996) reported that research and publication expectations along with the difficulty of obtaining research funding were major stressors. The researcher noted that one should be aware of the difference between perceived stress and experienced strain. In other words, just because faculty members express that they are stressed, does not mean they are feeling extreme strain. Sometimes, individuals are energized by stress and it is not always negative. Marcy found that tenure and age both were related to stress levels as older, more experienced faculty members did not experience as much job stress as their younger colleagues. However, findings in a study by Gertrude, Trice, Rosevear and McKinnon (1996) found contrary data in that higher ranks correlated with higher stress levels. This study did not report stress due to tenure and salary, but did attribute anxiety to the production of scholarly research and administrative duties.

Gender, Race and Cultural Issues

Studies on gender, race and culture have identified divisions in academe associated with stress. Gmelch, Wilke, and Lovrich (1986) found that females were at a higher risk of feeling anxiety associated with their professional environment. Others also found that their studies mirrored past research in that female faculty members encountered more stress than their male counterparts (Smith, Anderson, & Lovrich, 1995). Female faculty members, according to this study, seemed to be their own worst enemy in creating stress by setting high expectations for themselves. Sax et al. (1996) found that gender breakdown revealed that women faculty experienced higher stress levels compared to male faculty members. King and Cooley (1995) suggested that the imposter phenomenon could play a role in causing stress in high-achieving females. This is the notion or perception that one is not really capable of being successful in an intellectual setting when they may actually be quite competent in their roles.

A study conducted by Richard and Krieshok (1989) found no significant difference in stress at various professional ranks, but did note that stress levels tended to decrease as males moved up in rank while stress levels increased for females when they moved up in rank. Also, male assistant professors experienced higher levels of anxiety than female assistant professors. The researchers admitted that their findings differed from other studies, but offered their findings with hope that further research regarding gender differences would be conducted in the future.

Smith and Witt (1993) found that differences lie in stress levels between members of differing ethnic origins. The researchers stated that due to established paradigms in

academia, African American faculty were often subjected to demoralizing and stifling experiences and had to go beyond norms to prove their merit in higher education. According to these researchers, the academic culture was dominated by white male faculty and administrators, giving minority faculty members feelings of disconnection and alienation. Their analyses concluded that African American faculty members experienced more stress than their white colleagues. Thompson and Dey (1998) reported that the status quo of academe was challenged by African American faculty members who felt pressured to focus their studies around African American subject matter and were possibly pulled between the larger, predominantly white academic community and traditional cultural lines. The researchers found that time restraints, home responsibilities, governance activities, and promotion concerns contributed heavily to the overall anxiety levels of the African American faculty member.

A cross-cultural study by Keinin & Perlberg (1987) which examined differences between Israeli and American faculty members in general, reported that publishing and research were the main stressors in both countries. The researchers noted that American and Israeli faculty ranked significant stressors similarly, but also found that anxiety levels of American faculty members were higher than that of the Israeli faculty members. Both cultures ranked self-expectations, time restraints, workload, and publishing as high stressors. In a later study, Perlberg and Kremer (1988) reported that cultural attributes had no significant role in anxiety associated with higher education. After surveying faculty members from 12 different countries, it was concluded that stress seems to be inherent to higher education regardless of geographic location.

Administrative Anxiety

Studies have also been conducted on administrative members in higher education. In a study examining the role of the supervisor as it relates to the supervisee, Dodge (1982) found that anxiety levels of the supervisee may be lowered if clear expectations are communicated. The benefit here is that if anxiety levels are lowered for the supervisee, the anxiety level of the supervisor should also be lowered. Communication seemed to be the secret according to Dodge. Using Fiedler's LPC instrument, Theodory and Day (1985) reported a relationship between leadership style and stress. Basically this study stated that ineffective leadership may cause stress for the leader and the faculty as well. Blackburn, Horowitz, Edington and Klos (1986) found that self-esteem played a major role in the amount of stress present in the administrative position. Those administrators with higher self-esteem had lower stress levels and also experienced fewer health problems.

Burns and Gmelch (1992) examined stress and the role of department chairs. Because of the dual roles of the chair of a department, faculty and administrator, stress was twofold. There was often a time restraint limiting the time of department chairs to conduct research, adding to an already stressful environment. Pope and Miller's (1999) study of department chairs in a community college setting did not report research and publishing demands as a stressor due in part to expectations within the institution.

Math and Statistics Anxiety

Research in higher education usually encompasses some sort of higher-level math computations. The theoretical basis for this study presented math and computer anxiety

as possible predictors of research anxiety. Therefore, there is a need to examine relevant studies that have researched these topics and their implications in education. Even though there are software packages that make math computations easier, a sense of the order of mathematical operations is necessary. Gammage (1994) reported, in a study of adult learners, that math anxiety was very common in academe, and often hampered educational and economic success. Also, societal norms and self-esteem levels perpetuated the fear of math while the practice of mathematical concepts helped reduce anxiety. Gammage posited that math anxiety was a psychological, emotional and cognitive roadblock in the learning process. It could be denoted as a type of panic which may curtail productivity. Courtney et al. (1992) reported that statistics anxiety was significantly reduced when instructors employed cooperative learning techniques in their classrooms. Allowing the students to work in small groups seemed to build confidence in the students as opposed to a lecture style delivery.

One of the variables in this study is graduate preparation concerning research methodology and statistical procedures. Wilson's (1999) study examined responses from graduate students on their perceptions of research and the statistics that accompanied it. She noted that anxiety toward statistics had a negative effect on performance of statistical procedures. In severe cases, avoidance of careers that require statistics, like educational research, was the course for some students. Wilson found that students enrolled in an introductory research methods course reported that an encouraging teaching behavior and style affected how much stress was endured during the session. More encouragement equaled less stress. Also, allowing for practical application

exercises, collaboration with class members, as well as breaking material into smaller modules, reduced stress for the students.

Mustafa (1999) reported that statistics anxiety was the tension felt when taking a statistics class or doing statistical analysis of data and math anxiety was the tension felt when manipulating numbers in a wide variety of situations. He reported that math and statistics anxiety are not the same thing, but that math and statistics anxiety were rarely positive motivators and usually impaired endeavors associated with them. Mustafa noted math and statistics anxiety affected the process of doing math and statistics, but had little effect on the end product. It was the fear of the operation that impaired the ability to succeed in math and statistics according to this study.

Computer Anxiety

Research in education has received a boost from computer technologies and when used properly, this technology can ease data analysis and make the process of locating relevant resources much faster. This, in turn, increases the efficiency and the amount of scholarly research produced (Yang, Mohamed, & Beyerbach, 1999).

However, in order to reap the benefits of the new technology, faculty members must undergo instruction on how to use certain software. This can cause anxiety related to being able to successfully master software packages. Yang, Mohamad, and Beyerbach (1999) found that computer usage was the answer for reducing computer anxiety.

Jacobson and Weller (1988) examined computer use among faculty in a Humanities department. Those surveyed ($N = 265$) reported that most of their computer knowledge was self-taught, with only 13% reporting that training was received in their graduate

program and 10% reported no computer knowledge. The researchers reported that age and gender made little difference in the amount of anxiety associated with computers, but that assistant and associate professors had more interest in using computers than full professors. It was reported that technical support would ease anxiety as would sufficient resources to obtain software.

According to Sax et al. (1999) computer anxiety is a topic of increasing interest. Due to the fact computers have entered the offices of almost every faculty member in higher education, pressure to keep abreast of new technologies has become another variable in the study of faculty anxiety. The researchers reported that stress levels of faculty members, employed at two-year and four-year colleges as well as universities, have risen in the past two years due to new technologies in education. Specifically, this anxiety was reported more by female faculty members than males. The researchers also reported that nearly 90% of the surveyed faculty members ($N = 33,785$) felt computers were beneficial to the learning processes in higher education. This study found that most faculty used the computer to communicate via email, whereas roughly two-thirds of the faculty reported using the computer to conduct research and only 27% used it to conduct data analysis. Corwin and Marcinkiewicz (1998) found that when available, computer usage increased.

Library Anxiety

Research may encompass the use of a library and for that reason three studies that examined library anxiety were chosen to be included in the literature review of this study. In a 1995 study, Jiao and Anthony examined college students and library anxiety

and found that the overwhelming amount of resources offered by libraries compounded feelings of anxiety. One must be able to discern what materials are suitable, where to locate the needed resources, how to effectively evaluate the quality of a resource, and how to properly use it. They reported that library anxiety has become a barrier for college students. Jiao, Anthony and Daley (1997) reported that library anxiety decreased the ability to seek out and locate needed resources in the library. According to Clute (1998) new technology in university and local libraries and in society should be met with an open mind and the real problem may be in the fear of change by individuals.

Performance Anxiety

Faculty members are generally expected to present their research at regional or national conferences or to submit their research to peers in the field for review. Both of these actions can be considered performances. Therefore, performance anxiety may also be associated with research anxiety. Ferguson (1981) suggested that anxiety felt before a presentation may decrease verbal skills. Turner, Kaske, and Baker (1990) suggested that anxiety before a performance may reduce memory. This finding mirrored a study by Omar and Bond (1989) in that they reported that anxiety before a presentation hampered recall when called upon during a presentation. Wilson's (1999) study also revealed that students encountered performance anxiety due to presenting their findings in a group setting. Mustafa (1999) reported that the relationship between anxiety and performance usually results in negative outcomes such as high blood pressure, perspiration, stuttering, and voice tremors. This becomes a domino effect in that once a poor performance is enacted, anxiety levels rise compounding the situation (Tobias, 1986).

Consequences of Stress

Authors found in the literature not only have identified variables associated with stress and anxiety, but also have warned of potentially serious consequences due to stress and anxiety. Blackburn, Horowitz, Edington, and Klos (1986) stated that these conditions could lead to various physiological, psychological, and behavioral problems. These problems, in turn, could eventually lead to burnout or “worker morbidity and premature mortality” (p.31) and that these conditions may even accelerate heart disease. Seiler & Pearson (1985) noted that anxiety and stress were considered to be contributors of burnout, and the researchers called this condition ‘dysfunctional stress.’ The researchers stated that this condition could lead to withdrawal from professional and home responsibilities or even prompt a faculty member to switch to a different job.

Benjamin (1988) concluded that stress was an unavoidable contaminant in society and that one should be aware of the consequences surrounding anxiety. Severe stress can lead to coronary disease, respiratory problems, high blood pressure, and other mental illnesses. Donavon (1980) reported that alcoholism was also a threat when anxiety is encountered on the job. Often, faculty members turn to either alcohol or drugs to ease the strains associated with job stress. It has even been suggested that job anxiety may be one of the primary causes of early death (Smith, Anderson, & Lovich, 1995).

Anxiety Management: Mentoring and Collaboration

Anxiety reduction, as a consequence of the growing knowledge of anxiety, has become a topic of research. Stein (1981) reported that the presence of a mentor was instrumental in enhancing career success and aiding in the research and publishing

process. Mentors were appreciated more at universities that maintained a graduate program status within the department. Garofolo and Hansman-Ferguson (1994) examined female graduate students ($N = 56$) and mentoring relationships. They found that mentoring fostered career development and enhanced future success. Mentoring also encouraged collaboration as well as building relationships with colleagues and it presented opportunities to create leadership roles. However, the researchers pointed out that mentoring opportunities were offered more frequently to male faculty members than to their female counterparts. They found that more than 70% of those surveyed were interested in forming a mentoring relationship with a faculty member to aid in the publishing process. Schnell and Dates (1993) suggested that collaboration could enhance ethnical and cultural understanding and knowledge as well as promoting communication among faculty members.

Menges and Svinicki (1994) reported that there were clear implications for a need of a formal mentoring program for new faculty members, and there would always be a pool of senior faculty members that could aid in this process. Mentoring and collaboration both encouraged relationships to be developed as well as bridging the communication gap between new faculty and established faculty. Other studies have examined ways to help reduce anxiety in higher education. Benjamin and Walz (1987) proposed techniques for students and faculty to aid in the implementation of programs for stress management. The researchers listed publishing and research as the top five stressors associated with education. Korobkin (1990) proposed using humor in the classroom to help alleviate anxiety, and stated that shared laughter was an effective way

to “make laborious tasks less threatening (p. 154).” Furthermore, the researcher stated that humor could ignite creative thought and ease tension in social environments and claimed humor aids in the retention of material.

Summary of Literature

The literature makes a clear statement that anxiety is indeed present in higher education and there are several reoccurring variables that either breed or increase anxiety levels of faculty members. Scholarly productivity and pressure to publish are factors that directly relate to anxiety on university campuses. Though the literature points to certain variables as stressors, there is very little in the literature that explains why there is so much anxiety related to pressure to publish and the production of scholarly research. Is there a systematic approach that can be used to ease the amount of stress related to scholarly productivity? The literature suggests that mentorships be established between senior and junior faculty members. The problem here is that researchers report in the literature that faculty members already feel the pinch of time restraints placed on them by juggling research, teaching and service assignments. Would mentorships add to this problem? Are there other solutions that could be implemented to ease anxiety associated with productivity? This study will examine possible areas of concern that may prove beneficial in the struggle against anxiety in higher education. Gmelch (1996) proposed that administrations adopt programs to help faculty members allocate sufficient time to each role. He suggests that through proper time management instruction, faculty members can be more productive researchers and better teachers.

Table 1 contains a listing of 13 prominent studies regarding anxiety of faculty members in higher education. The studies date from 1984 to 1998 and have been placed

Table 1. Top five variable categories related to anxiety of faculty members

Findings of 13 Prominent Research Studies	Top 5 Stress Categories in Literature				
	Self- expectations	Time Restraints	Research, Funding & Pressures to Publish	Professional Status: Tenure, Salary & Rank	Personal Variables: Gender, Age Ethnic Origin
Thompson & Dey (1998)	x	x	x	x	x
Gertrude et al. (1996)		x	x	x	x
Marcy (1996)			x	x	x
Smith et al. (1995)	x	x	x	x	x
Smith & Will (1993)		x	x		x
Burns & Gmelch (1992)	x		x		x
Grant (1991)		x	x		
Perlberg & Hayon (1988)			x	x	
Richard & Krieshok (1989)			x	x	
Keinan & Perlberg (1987)	x	x	x	x	x
Gmelch et al. (1986)	x	x	x	x	x
Seiler & Pearson (1985)	x	x	x		x
Gmelch et al. (1984)	x	x	x	x	x

in order from latest to earliest. Authors in all 13 studies reported that research endeavors and pressures to publish scholarly research cause anxiety in faculty members. It is the only variable found to be related to anxiety levels of faculty in all of the studies, but the

focus of each study differed and this may be the reason other variables did not appear to be a significant stressor. Even if that were the case, it is still evident that research and publishing pressures give cause for concern and merit further investigation as to how to alleviate anxiety associated with these factors.

CHAPTER III: METHODOLOGY

The third chapter of this study examines the results of the investigation.

Methodological foundations surrounding population frame determination, sampling techniques, instrument development, survey contents, data collection strategies, field test procedures, follow-up procedures, and final analysis of data are developed in that order to guide the reader through the experimental design of the study. For the benefit of the reader, several tables associated with the previously mentioned criteria have been inserted to effectively display this information.

Population and Sample

The target population of this study was faculty members holding academic appointments within research universities. The accessible population included faculty members holding academic appointments, at the rank of lecturer or higher, within departments associated with the University Council for Workforce and Human Resource Education (UCWHRE), formerly known as the University Council for Vocational Education (UCVE). The sample was randomly chosen from the frame of faculty members associated with UCWHRE. It was determined, by visiting university home pages, and through personal communication with individual departments that the population frame for this organization was 343 faculty members, as of Fall 2000 (<http://euro.hre.uiuc.edu/hrewebsite/resources/ucve/index.HTML>). The 20 member universities of the UCWHRE are found in Table 2.

Cochran's sample size formula was used to calculate a required sample size of 267 faculty members for the study as follows:

Table 2. The University Council for Workforce and Human Resource Education Participating Universities.

Auburn University	Oklahoma State University	University of Georgia	University of Missouri-Columbia
Colorado State University	Pennsylvania State University	University of Idaho	University of Nebraska-Lincoln
Louisiana State University	Southern Illinois University	University of Illinois	University of Tennessee
North Carolina State University	Texas A&M University	University of Kentucky	University of Wyoming
Ohio State University	University of Arkansas	University of Minnesota	Virginia Polytechnic Institute and State University

$$n_0 = \frac{(t)^2 * (s)^2}{(d)^2} = \frac{(1.96)^2(1.25)^2}{(5 * .03)^2} = 267$$

t = value for selected alpha level of .05 (two- tail) = 1.96
(the alpha level of .05 indicates the level of acceptable risk the researcher is willing to take that true actual margin of error may exceed the acceptable margin of error.

s² = estimate of variance in the population = 1.6
(estimate of variance deviation for 5 point scale calculated by using 5 [inclusive range of scale] divided by 6 [number of standard deviations that include all possible values in the range] and then squaring this number.)

d = acceptable margin of error for mean being estimated = .15
[error researcher is willing to accept])

Since the sample size (267) is more than 5 percent of the total population (378), Cochran's small population correction formula was used to adjust the sample size to 156 faculty members (Cochran, 1975). The researcher anticipated a lower than necessary

response rate. One hundred additional cases were drawn from the population to implement a sample with replacement method.

$$n_1 = \frac{n_0}{1 + n_0/N} = \frac{267}{1 + 267/378} = 156$$

Instrumentation

An instrument (Appendix A), the Higgins - Kotrlik Research Anxiety Inventory was developed through a thorough review of existing research and based on the theoretical model presented in chapter 1. The instrument was designed to address the objectives of the study. The questionnaire consisting of four sections designed to measure faculty members' perceptions regarding research anxiety, and was configured into a booklet format. Since perceptions were being examined, questions in sections one, two, and three were rated using a five point Likert-type scale with numerical ratings as follows: 1- strongly disagree, 2- disagree, 3- neutral, 4- agree, 5- strongly agree.

Section 1 contains 18 items focusing on the concept of research anxiety. This section examines the perceptions of the faculty members regarding how confident they are in designing and conducting relevant research as well as how they feel their research is accepted by their peers. This section was constructed to measure the faculty members' level of confidence where the subject of research is concerned.

Section 2 contains 18 items focusing on the faculty member's professional research environment. This section examines the actual working environment of the faculty member as it relates to support from the administration and other faculty

members as well as examining the amount of pressure placed on the faculty members to produce scholarly research.

Section 3 of the instrument contains 14 items focusing on the educational preparation of the faculty members in the area of research. The questions are intended to investigate the effectiveness of the graduate programs completed by the faculty members regarding research procedures and statistical methodology.

Section 4 contains 11 items designed to collect pertinent demographic information regarding the faculty members participating in the study. The questions in this section focus on the current status of the participants with regard to employment in higher education and are designed to describe the current view of research, in general, within the departments included in the study.

Survey Evaluation

The instrument was reviewed by a panel of experts in the field, including 10 experts in educational research oriented areas in higher education. The review process included committee members and other professionals in higher education and involved examinations regarding validity (face and content). Comments and suggestions were beneficial in creating an instrument which served the purpose of this study.

Pilot Test and Instrument Revision

A pilot test of the instrument was conducted to assess the validity (face and content) of the Higgins-Kotrlik Research Anxiety Inventory and the other two scales of the instrument. Because of the limited number ($N = 342$) of faculty members in the population frame, the pilot test included a random sample of 100 faculty, who were not

participants in the final study, leaving enough of the population frame to sufficiently conduct proper data analysis techniques required for inferential statistics. This process aided the researcher in identifying items in the instrument which needed modification. The pilot test attempted to identify any possible problems associated with the design of the instrument as well as any problems in the data collection procedures.

Data Collection

Data collection was conducted using recommendations by Dillman (1978). Each instrument was coded so that an efficient follow-up process could be implemented. The faculty members selected for participation in the study received a packet containing a cover letter explaining the intent and significance of the study, a questionnaire, and a stamped, self-addressed envelope, which made the reply convenient for the respondent by removing all cost obligations. Those who did not respond to the first mailing within a two week time period received a subsequent mailing containing the identical contents used in the initial mailing. Less than 85% of the participants responded to the study and a systematic telephone follow-up of a random sample of 50 individuals in the non-respondent category was conducted two weeks after the second mailing. The anonymity of all respondents was guaranteed, but they were made aware of the coding system to guard against duplication during the second mailing.

Data Analysis

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) home PC version. A t -test procedure was used to determine if differences existed between the respondent group and those who participated in the telephone follow-up

process on the key variables (graduate preparation, personal characteristics, and professional environment) of the study. The grand mean scores of the three primary variable scales within the instrument were used for the t-test procedure. Descriptive statistics were used to measure the demographic variables as well as all three scales of the instrument. Dichotomous, ordinal, and categorical variables were analyzed by using frequencies and percentages. Variables continuous in nature as well as interval data were analyzed using means and standard deviations. The scaled items for all of the instrument were treated as interval variables and were measured using means and standard deviations for statistical analysis. The alpha level for the study was set a priori at .05, as the researcher is willing to risk five percent error in the findings of this study.

Objective One: Determine selected demographic characteristics of University Council faculty members. The demographic variables of interest in this study were measured through the use of frequencies, percentages, means, and standard deviations. Demographic variables of interest are: age, rank, gender, mentoring possibilities within the current department, highest degree held, teaching experience, and time allocated for research, teaching, and service. Two scales, The Professional Environment Inventory, and The Educational Preparation Inventory examined the workplace atmosphere and the graduate experience of the faculty members and was measured by examining means and standard deviations.

Objective Two: Determine research anxiety levels of University Council faculty members. This objective was determined by measuring the scaled data from the Higgins-Kotrlik Research Anxiety Inventory. Since the Higgins-Kotrlik Research Anxiety

Inventory is the primary scale of the instrument, it was subjected to a factor analysis technique to reveal if there were sub-factors present within the scale.

Objective Three: Determine if significant correlations exist between selected demographic variables and the research anxiety of University Council faculty members.

This objective employed the use of the appropriate correlation coefficients to explore relationships between the selected demographic variables and research anxiety. Since the gender of the participants is a dichotomous variable, the point biserial correlation coefficient was used. The age of the faculty members as well as the number of years they have held an appointment in higher education are both interval in nature and Pearson's Product Moment Correlation Coefficient was used for analysis. The rank of the respondents is an ordinal variable, thus Spearman's Correlation Coefficient was employed for the purposes of analysis.

Objective Four: Determine if selected variables explain significant portions of variance in research anxiety in University Council faculty members. A step-wise multiple regression procedure was used to achieve this objective. This procedure explored the amount of variance the independent variables entered into the model (educational preparation, personal characteristics, and professional environment) explained in research anxiety associated with faculty members in higher education. The categorical variables in the regression analysis were dummy coded.

CHAPTER IV : FINDINGS

The sample consisted of 156 university faculty members. Of those who were sampled, 97 returned the survey and a telephone follow-up garnished another eight responses, totaling 105 completed instruments (67%). All of the responses ($N=105$) were used for the analyses required by the objectives of this study. Table 3 shows, through the employment of an Independent Samples T-Test, that there were no significant differences between the mail and telephone responses on the Higgins-Kotrlík Research Anxiety Inventory, the Professional Environment Inventory, or the Educational Preparation Inventory.

Table 3. Comparison of Respondents and Non-Respondents on The Higgins-Kotrlík Research Anxiety Inventory, The Professional Environment Inventory, and The Educational Preparation Inventory

Scale	Respondents ^a		Non-Respondents ^b				
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>df</u>	<u>t</u>	<u>p</u>
Higgins-Kotrlík Research Anxiety Inventory	41.02	10.99	43.05	8.88	103	.57	.46
Professional Environment Inventory	59.00	10.86	59.86	11.64	103	.22	.78
Educational Preparation Inventory	50.61	8.42	50.63	6.14	103	.01	.33

^a n = 97 (mail). ^b n= 8 (telephone).

Demographic Characteristics of UCWHRE Faculty Members

Objective One was to explore selected demographic characteristics of the faculty included in the study. Variables of interest included; age, rank gender, mentoring, degree

held at the time of the study, time allocated by the administration for research; teaching; and service; and current teaching experience. Table 4 shows the age, number of years employed in higher education and rank of the faculty members. The average age of the faculty members was 52.33, with a range from 38 to 70 years. The average number of years employed in higher education was 18 years with a range from 2 to 37 years. The table also contains the average amount of time that participating faculty members reported their departments allocated them personally for conduct teaching, research, service, and administrative duties. The respondents reported that the mean percent of appointments to teaching was 53.70% with a range from 0% to 100%, and the mean percent of appointments to research was 21.67% with a range from 0% to 60%. The mean percent of appointments to service oriented duties was 14.21% with a range from 0% to 95%, and the mean percent of appointments to administrative tasks was 8.83% with a range from 0% to 100%.

Table 4. Age, Number of Years Employed in Higher Education and Time Allocated for Teaching, Research, Service and Administrative Duties (N= 106)

Demographic	<u>M</u>	<u>SD</u>	Range
Age (years)	52.33	7.51	38-70
Years employed in Higher Education	18.55	8.88	2-37
Average percentage of appointment allocated			
-Teaching	53.7	26.00	0-100%
- Research	21.67	15.92	0-60%
-Service	14.21	15.79	0-95%
-Administrative	8.83	24.30	0-100%

Table 5 displays the demographic data on gender, rank, degree held, mentoring possibilities, gender, type of contract held in higher education, whether one teaches a research methods course, and whether one teaches a statistics course. Males made up 74 (72.10%) of the sample with the remaining 30 (28.80%) respondents being female. Fifty (48.10%) participants held the rank of full professor, 32 (30.80%) were classified as associate professors, 19 (18.30%) were listed as assistant professors, 1 (1.00%) was categorized as a lecturer, and 2 (1.90%) of the respondents labeled themselves as administrative personnel. Of the participants, 65 (63.10%) held a Ph.D., 37 (35.90%) held an Ed.D., and one (1.00%) respondent reported holding a Master's degree. This item had an "other" option, but none of the respondents checked that option.

Regarding the possibility of being influenced by a mentoring program, 70 (66.70%) faculty members reported that their departments had no official mentoring program, while 34 (32.7%) responded that there was an unofficial mentoring system that they were either the benefactor or facilitator. This data was gleaned from the comment section of the questionnaire. Fifty-nine (56.20%) of the faculty members reported they held nine month contracts, as opposed to 45 (42.90%) faculty members holding a 12 month contract. This item had an "other" option, but none of the responses had this option checked. Of the faculty members who answered the survey, 32 (30.50%) taught a research methods course, and 6 (5.70%) taught a statistics course.

Research Anxiety and University Faculty

The second objective of the study was to explore the level of research anxiety in university faculty members. Table 6 displays the research level of faculty members in

Table 5. Professional Demographic Information of Faculty Members

Professional Variables	f	%
Degree Held		
-Master's	1	1.00
-Ed.D.	37	35.90
-Ph.d.	65	63.10
Rank		
-Instructor/lecturer	1	1.00
-Assistant Professor	19	18.30
-Associate Professor	32	30.70
-Full Professor	50	48.10
-Administrative	2	1.90
Official Mentoring Program		
-Department offered an official mentor program	34	33.30
-Department did not offer an official mentor program	70	66.70
Type of contracts held		
-9 month academic contract	59	56.10
-12 month academic contract	45	43.90
Research methods		
-Taught course	32	31.50
-Did not teach course	72	68.50
Statistics methods		
-Taught course	6	5.70
-Did not teach course	98	94.30
Gender		
-Male	74	71.20
-Female	30	28.80

higher education. The researcher had no reference to normative data concerning research anxiety and therefore created a grading scale, based on the total responses received from the sample, describing the research anxiety levels of the participants. The responses were divided into quartiles to create three categories measuring levels of research anxiety of

Table 6. Research Level of UCWHRE Faculty Members

Respondent Range	Quartiles	Research Anxiety Category
19-33	0-25%	'Low' level of research anxiety
34-48	26-75%	'Moderate' level of research anxiety
49-68	76-100%	'High' level of research anxiety

faculty members. The responses to the 18 item inventory, based on the five point Likert-type scale used, ranged from 19 to 68. The top quartile, 49-68, represents high levels of research anxiety, the two middle quartiles, 34-48, represent moderate levels of research anxiety, and the bottom quartile, 19-33, represents low levels of research anxiety. The scaled data retrieved from the Higgins-Kotrlik Research Anxiety Inventory reported an overall mean of was 41.38. This moderate level of research anxiety showed that there was concern regarding research procedures for faculty members.

Table 7 shows the responses to the 18 items contained in the scale. Item 16, "I need to improve my statistical skills", had the highest mean score of 3.68 (SD = 1.01). The respondents reported that they needed to improve their statistical analysis skills. Item 6, "I am confident when writing the findings for a research study", had the lowest mean score at 1.62 (SD = .64), reporting a lack in confidence when writing the findings for a research study. The Cronbach's *alpha* for the scale was .89. Litwin, 1995, reported that a score above $\alpha = .70$ represents good reliability.

The Higgins-Kotrlik Research Anxiety Inventory is the primary scale of the survey and is the focal point of the study. Therefore, the researcher felt it was necessary to use factor analysis to determine if other sub-factors are present in the primary scale. Table 8 displays the findings of the exploratory factor analysis. Using factor analysis with

Table 7. Responses to The Higgins-Kotrlik Research Anxiety Inventory (N=106)

Item	Higgins-Kotrlik Research Anxiety Inventory Items	<u>M</u>	<u>SD</u>
16	I need to improve my statistical skills.	3.68	1.01
15	I need to improve my research skills.	3.37	1.09
11	It bothers me that my research may not be judged as quality work.	2.85	1.20
9	It bothers me that my research may not be judged as acceptable by reviewers for research journals.	2.81	1.18
18	It bothers me that my research may not be judged as acceptable by reviewers for research journals.	2.69	1.20
12	When working on a research project, I experience anxiety	2.64	1.37
14	I often feel uncomfortable when discussing research methods.	2.45	1.22
10	When I conduct research, I worry about the possibility of using incorrect data analysis.	2.33	1.12
3 ^a	I am confident when synthesizing a theoretical base of a study to be published in a refereed research journal.	2.05	.88
13	When I conduct research, I fear that it is poor compared to others in my field.	2.04	1.17
5 ^a	I am confident when conducting the data analysis of a study for possible publication in a refereed research journal.	2.01	.97
8	When reading research articles, I am apprehensive about being able to synthesize the findings	1.95	.97
1 ^a	I produce research that is respected by my peers.	1.90	.80
4 ^a	I am confident when preparing a research methodology of a study for possible publication in a refereed research journal.	1.84	.90
17	I would (or do) have difficulty reviewing manuscripts for refereed research journals.	1.78	.89
7 ^a	I am confident when writing the conclusions of a study for possible publication in a refereed research journal	1.72	.77
2 ^a	I am confident when stating the purpose and objectives of a study to be published in a refereed research journal.	1.67	.63
6 ^a	I am confident when writing the findings for a research study.	1.62	.64

Note. Scale for the Higgins-Kotrlik Research Anxiety Inventory is as follows: 1-strongly disagree, 2-disagree, 3-undecided, 4-agree, 5-strongly agree.

^a= items have been reverse scored.

varimax rotation (latent root criterion technique), which considers only factors that have eigenvalues (latent roots) greater than 1.00 to be significant, five sub-factors were present in the inventory (Hare, Anderson, Tatham, & Black, 1998). Each of the five sub-factors explained at least five percent of the variance present in the construct of research anxiety and combined to explain 69.89% of the total variance in the construct. The five factors, the statements that loaded on each factor, and the Cronbach's alpha for each factor are shown in Table 8. The data show that all items loaded on their respective factor above the preset factor loading level of .30. The internal consistency of the five factors ranged from a Cronbach's alpha of .64 to .83, as shown in Table 8.

The researcher developed the Higgins-Kotrlik Research Anxiety Inventory to measure the construct of research anxiety in higher education, and therefore felt it necessary to explore further factor analyses exploring the construct of research anxiety. All of the items were forced into one main construct. All of the items loaded at or above .3. The item with lowest loading of .31 was "When reading research articles, I am apprehensive about being able to synthesize the findings". The item with the highest loading of .78 was "I am confident when conducting the data analysis of a study for possible publication in a refereed research journal". Table 9 displays the one factor solution for The Higgins-Kotrlik Research Anxiety Inventory.

Professional Environment of University Faculty Members

Objective two also sought to explore the professional environment of the faculty members that participated in the study. The instrument contained a scale, the Professional Environment Inventory, that was constructed to give the researcher an idea

Table 8. Five Factor Solution for The Higgins-Kotrlik Research Anxiety Inventory

Item	Factor loadings for the Higgins-Kotrlik Research Anxiety Inventory				
	Project anxiety ($\alpha=.82$)	Research confidence ($\alpha=.83$)	Peer anxiety ($\alpha=.81$)	Research improvement ($\alpha=.82$)	Research synthesis ($\alpha=.64$)
Factor 1: Project Anxiety M=2.23, SD=.84					
When I conduct research, I fear that it is poor compared to others in my field.	.81				
When working on a research project, I experience anxiety	.74				
When I conduct research, I worry about the possibility of using incorrect data analysis.	.76				
I often feel uncomfortable when discussing research methods.	.61				
I would (or do) have difficulty reviewing manuscripts for refereed research journals.	.49				
Factor 2: Research Confidence M=1.89, SD=.65					
I am confident when stating the purpose and objectives of a study to be published in a refereed research journal.		.79			
I produce research that is respected by my peers.		.78			
I am confident when synthesizing a theoretical base of a study to be published in a refereed research journal.		.63			
I am confident when preparing a research methodology of a study for possible publication in a refereed research journal.		.62			
I am confident when conducting the data analysis of a study for possible publication in a refereed research journal.		.52			

(table continued)

Item	Factor loadings for the Higgins-Kotrlik Research Anxiety Inventory				
	Project anxiety ($\alpha=.82$)	Research confidence ($\alpha=.83$)	Peer anxiety ($\alpha=.81$)	Research improvement ($\alpha=.82$)	Research synthesis ($\alpha=.64$)
Factor Three: Peer Anxiety M=2.78, SD=1.01					
It bothers me that my research may not be judged as quality work.			.83		
It bothers me that my research may not be judged as acceptable by reviewers for research journals.			.78		
It bothers me that my research may not be judged as acceptable by reviewers for research journals.			.76		
Factor Four: Research Improvement M=3.52, SD=.97					
I need to improve my research skills.				.87	
I need to improve my statistical skills.				.85	
Factor Five: Research Synthesis M=1.77, SD=.61					
When reading research articles, I am apprehensive about being able to synthesize the findings.					.72
I am confident when writing the conclusions of a study for possible publication in a refereed research journal.					.68
I am confident when writing the findings for a research study.					.60

of the current professional climate that the faculty members are confronted with in higher education. Table 10 displays the responses to the 18 item scale. The high mean of 4.10 belonged to "My department places too much emphasis on teaching." The faculty

Table 9. One Factor Solution for The Higgins-Kotrlik Research Anxiety Inventory

Item	loadings
I am confident when conducting the data analysis of a study for possible publication in a refereed research journal	.788
I am confident when preparing a research methodology of a study for possible publication in a refereed research journal.	.783
When I conduct research, I worry about the possibility of using incorrect data analysis.	.728
I am confident when writing the findings for a research study.	.697
When I conduct research, I fear that it is poor compared to others in my field.	.685
When working on a research project, I experience anxiety	.684
I am confident when writing the conclusions of a study for possible publication in a refereed research journal	.641
I would (or do) have difficulty reviewing manuscripts for refereed research journals A17	.639
I often feel uncomfortable when discussing research methods.	.635
I am confident when synthesizing a theoretical base of a study to be published in a refereed research journal.	.633
It bothers me that my research may not be judged as acceptable by reviewers for research journals.	.621
I am confident when stating the purpose and objectives of a study to be published in a refereed research journal.	.557
I need to improve my statistical skills.	.505
It bothers me that my research may not be judged as quality work.	.491
When I conduct research, I worry about the possibility of the manuscript not being accepted for publication.	.471
I need to improve my research skills.	.431
I produce research that is respected by my peers.	.426
When reading research articles, I am apprehensive about being able to synthesize the findings	.313

members agreed that their departments placed too much emphasis on teaching. The low mean, 1.89, was for “My department offers desirable teaching assignments as a reward for publishing in refereed research journals.” The respondents strongly disagreed that their departments offered desirable teaching assignments as a reward for publishing in research journals. The overall reliability for this scale was .85.

Educational Preparation of University Faculty Members

The third portion of objective two was to examine the graduate educational preparation of the respondents. The final scale of the survey, The Educational Preparation Inventory, was constructed to give the researcher data that would define the faculty members perception of their personal graduate experience. Table 11 displays the responses to the 14 item scale. Of the responses, “ My presentation Skills were adequate for success in higher education” had the highest mean of 4.39. The respondents agreed that their graduate experience provided adequate preparation regarding presentation skills. The lowest mean of 2.22 was for “I published research in peer reviewed journals with other students during my graduate course work.” The faculty members disagreed that they published research with other students during their graduate experience. The Cronbach’s Alpha reliability coefficient for this scale was .79.

Relationship Between Selected Demographic Variables and Research Anxiety

Objective three sought to determine if significant correlations exist between selected demographic variables and the research anxiety of University Council faculty members. The demographic variables in question were rank, gender, age, mentoring, the number of tenure track faculty members in the department, type of contract held, highest

Table 10. Responses to The Professional Environment Inventory (N=106)

Item	Professional Environment Inventory Items	<u>M</u>	<u>SD</u>
3 ^a	My department places too much emphasis on teaching.	4.10	.91
18	I involve students, as co-researchers, in my efforts to publish in refereed research journals.	3.90	.99
6 ^a	My department discourages collaboration on research projects with other faculty members within my department.	3.90	1.17
12	My peers recognize my efforts to publish in refereed research journals.	3.72	.93
13	My peers support my efforts to conduct research.	3.70	.96
14	My university administration recognizes my efforts to publish in refereed research journals.	3.69	1.01
15	My university administration supports my efforts to conduct research.	3.56	1.07
1 ^a	My department places too much emphasis on research.	3.51	1.15
5	My department promotes collaboration on research projects with other faculty members outside my department.	3.48	1.17
4	My department promotes collaboration on research projects with other faculty members within my department.	3.48	1.15
16	My department encourages collaboration when publishing refereed journal manuscripts.	3.44	1.09
2 ^a	My department places too much emphasis on publishing in refereed research journals.	3.37	1.22
10	My department provides travel money to support my research and publishing endeavors.	3.07	1.29
11	My department has asked me to serve as a research mentor for new faculty members.	2.90	1.32
17	A senior faculty member has served as a research mentor to me.	2.55	1.41
7 ^a	My teaching load often makes it difficult to find time for conducting research projects.	2.46	1.24
9	My department adequately finances my research agenda.	2.35	1.13
8	My department offers desirable teaching assignments as a reward for publishing in refereed research journals.	1.89	.89

Note. Scale for the Professional Environment Inventory is as follows: 1-strongly disagree, 2-disagree, 3-undecided, 4-agree, 5-strongly agree.

^aitems have been reverse scored.

Table 11. Responses to The Educational Preparation Inventory (N=106)

Item	Educational Preparation Inventory Items	M	SD
5	My presentation skills were adequate for success in higher education.	4.39	.64
6	My library skills were adequate for success in higher education.	4.20	.78
7	My doctoral committee chair was a highly respected researcher in his/her field.	4.06	1.08
8	My doctoral committee chair adequately advised students on research projects.	4.04	1.11
1	My research methodology skills were adequate for success in higher education.	4.03	.83
9	My doctoral committee chair encouraged me to publish research in peer reviewed research journals.	4.00	1.18
4	My computer skills were adequate for success in higher education.	3.96	.95
3	My mathematic skills were adequate for success in higher education.	3.94	.82
2	My statistics skills were adequate for success in higher education.	3.80	.95
11	My doctoral committee chair was a prolific publisher.	3.43	1.32
10	My doctoral committee chair collaborated with me on publishing research manuscripts.	3.03	1.52
14	I published research in peer reviewed journals on my own during my graduate course work.	2.76	1.44
12	I published research in peer reviewed journals with other faculty members during my graduate course work.	2.75	1.47
13	I published research in peer reviewed journals with other students during my graduate course work.	2.22	1.27

Note. Scale for the Educational Preparation Inventory is as follows: 1-strongly disagree, 2-disagree, 3-undecided, 4-agree, 5-strongly agree.

degree held, research methods classes taught, statistics class taught, and years employed in higher education. The coefficients were interpreted using Davis' (1971) set of descriptors.

The correlation coefficient for rank was $r_s = -.38$, which is a moderate correlation that suggests as one progresses in rank in higher education, research anxiety declines. Whether a faculty member had a formal research mentor (dichotomous) had a low correlation coefficient of $r_{pb} = .21$, suggesting that a formal mentoring program helped alleviate research anxiety. The variable age had a low correlation coefficient of $-.19$, revealing that as one ages, research anxiety lessens. The variables regarding teaching research and statistics courses had coefficients of $r_{pb} = .35$ and $r_{pb} = .21$, indicating moderate and low correlations, respectively. Interestingly, these coefficients suggest that those faculty members who teach research methods and statistics courses (dichotomous) experience higher anxiety levels when it comes to research. The number of years employed in higher education had a coefficient of $r_s = -.38$, suggesting that as the years of employment increased, research anxiety decreased. No relationships existed between research anxiety and gender, number of tenure track faculty in the respondent's department, highest degree held, and type of contract. Table 12 displays the relationships between research anxiety and the selected demographic variables (rank, mentor program, age, gender, number of tenure track faculty in the respondent's department, type of contract, experience in teaching research methods and statistics courses, highest degree held, and years of employment in higher education).

Model to Explain Variance in the Higgins-Kotrlik Research Anxiety Inventory

Objective four sought to determine if selected variables explain significant portions of variance in research anxiety in University Council faculty members. Using the step-wise multiple regression procedure, the researcher explored the amount of

Table 12. Correlations Between the Higgins-Kotrlík Research Anxiety Inventory and Selected Demographic Variables.

Demographic Variables	Higgins-Kotrlík Research Anxiety Inventory			
	<u>r</u>	Interpretation	<u>p</u>	<u>N</u>
Rank ^a	-.38	Moderate	<.01 ^d	104
Years of employment in higher education ^b	-.37	Moderate	<.01 ^d	104
Number of tenure track faculty members in the department ^b	No significant correlation		.31	102
Age ^b	-.19	Low	.02 ^d	104
Gender ^c	No significant correlation		.09	102
Highest degree held ^c	No significant correlation		.21	103
Type of contract ^c	No significant correlation		.15	104
Mentor Program ^c	.21	Low	.01 ^d	104
Taught research methods courses ^c	.35	Moderate	<.01 ^d	104
Taught statistics courses ^c	.21	Low	.01	104

Note. Interpretations according to Davis's (1971) descriptors: .01-.09 (negligible), .10-.29 (low), .30-.49 (moderate), .50-.69 (substantial), .70-.99 (very high), and 1.0 perfect
^a = Spearman's Rho, ^b = Pearson's Product Moment, ^c = Point Biserial, ^d = significant correlations

variance selected independent variables (educational preparation, professional environment, gender, rank, years employed in higher education, and age) explained in research anxiety associated with UCWHRE faculty members. The step-wise regression entry method was conducted with a significant probability value of .05 for a variable to enter and a significant probability of .10 to exit. The Collinearity test revealed that no

multi-Collinearity existed in the regression model, as all VIF values were under 2.00 (Neter, Kutner, Nachtsheim, & Wasserman, 1996). A histogram aided in the diagnosis which confirmed the normality of the distribution. The regression analysis revealed that only educational preparation ($M = 50.61$, $SD = 8.25$), years employed in higher education, and professional environment ($M = 56.07$, $SD = 10.86$) were significant explanatory variables. These three variables explained 48% of the variance found in the dependent variable, research anxiety. Table 13 displays the step-wise regression analysis.

Table 13. Step-wise Multiple Regression Analysis of Research Anxiety

Source Variation	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Regression	5815.47	3	1938.49	29.93	<.01
Residual	6282.39	97	64.76		
Total	12097.86	100			
Variables that entered the equation			<u>R² Cum</u>	<u>b</u>	<u>p</u>
Educational Preparation			.30	-.50	<.01
Years employed in higher education			.45	-.37	<.01
Professional Environment			.48	-.17	.02
Variables that did not enter the model				<u>t</u>	<u>p</u>
Rank				-.68	.49
Gender				.10	.91
Age				.38	.70
Highest degree completed				.61	.54
Appointment to Research				.98	.33
Appointment to Teaching				.04	.97
Appointment to Service				-.65	.52
Appointment to Other				-.32	.75
Formal research mentor				-.65	.50

CHAPTER V: SUMMARY AND CONCLUSION

Summary of Purposes and Objectives

The purpose of the study was to determine if certain factors explain research anxiety in higher education. These factors included the educational preparation faculty members received during their graduate work, personal characteristics, and the professional environment encountered by the faculty members at their university. Three scales, The Higgins-Kotrlik Research Anxiety Inventory, The Professional Environment Inventory, and The Educational Preparation Inventory were used to measure the respective constructs. The instrument also included a section containing selected demographic questions. The survey was developed through a synthesis of the literature pertaining to faculty anxiety in higher education.

The four objectives of the study were to: 1) Determine selected demographic characteristics (rank, age, gender, type of contract held, mentoring program, highest degree held, experience teaching research methods and statistics courses, and years employed in higher education) and perceptions concerning the professional environment and educational preparation of university faculty members. These variables were analyzed using frequencies, percentages, means and standard deviations. 2) Determine research anxiety levels of university faculty members in higher education. This objective was followed through an analysis of the scaled data obtained from The Higgins-Kotrlik Research Anxiety Inventory and was measured by examining means and standard deviations. Since The Higgins-Kotrlik Research Anxiety Inventory is the primary scale of the study, it was subjected to a factor analysis to determine if sub-factors are present

within the scale. 3) Determine if significant correlations exist between selected demographic variables and the research anxiety of UCWHRE faculty members. This objective employed the use of the appropriate correlation coefficients to explore relationships between professional environment, educational preparation, and selected demographic variables (rank, mentoring, number of tenure track faculty in the department, gender, age, type of contract held, experience with teaching research methods courses and statistics courses, and number of years they have held an appointment in higher education) and research anxiety. 4) Determine if selected variables explain significant portions of variance in research anxiety in UCWHRE faculty members. A step-wise multiple regression procedure was used to achieve this objective. This procedure explored the amount of variance the independent variables explained in research anxiety associated with faculty members in higher education upon the variables entry into the regression model (educational preparation, selected demographic characteristics, and professional environment).

Summary of the Limitations of the Study

As with any study, limitations of the scope of this work are subject to a certain amount of scrutiny. The sample population consisted of faculty employed at UCWHRE member universities. The reader then has the task of determining the extent to which generalizations can be made to other populations. Data were collected using an instrument designed to determine perceptions of faculty members regarding their personal experiences with research in the profession. As with any survey research, one

must allow for a certain amount of error to be present when making personal judgements as to the findings of the data analysis.

Research anxiety, for the purpose of this study, was defined as the stress or feelings of uneasiness that are associated with faculty members' scholarly productivity in higher education. Scholarly productivity was defined as works created by a faculty member including articles accepted by peer reviewed journals. By synthesizing the relevant literature concerning faculty productivity, the researcher was able to locate very little substantiated data regarding research anxiety associated with faculty productivity in higher education. Stresses associated with productivity were evident in most studies on faculty productivity, but statistical documentation regarding origins of research anxiety was lacking. Therefore, this study attempted to explore the concept of research anxiety, as measured by The Higgins-Kotrlik Research Anxiety Inventory, and the impact of selected factors on research anxiety in higher education.

Summary of the Theoretical Basis for the Study

The theoretical framework of the study was developed around the premise that anxiety is a part of human existence. In small amounts, it keeps us on task and productive. In large amounts, it can hamper productivity and even cause health problems (Keinan & Perlberg, 1987). Anxiety in the workplace is well documented, but little research has been conducted on anxiety in higher education as it relates to scholarly productivity. Scholarly productivity is instrumental in the advancement of faculty members in higher education (Pettitjohn & Udell, 1991). Because of the pressures placed

on faculty members to produce at a certain level to ensure promotion and tenure, an examination of research anxiety was warranted.

Past studies have identified two major categories of anxiety; state and trait (Oetting, 1983). For the purpose of this study, research anxiety was considered to be in the category of state anxiety, in that research anxiety is situational, and not an inherent characteristic, or trait, that exhibits itself in a person at all times. Studies that have examined scholarly productivity suggest that several variables can combine to create anxiety when a faculty member is pressured to produce for advancement purposes. The researcher feels that this anxiety created by pressures to produce is increased by the rigor of the research process itself. A faculty member may be able to lessen the amount of stress that accompanies his/her position in higher education if he/she knows the correct research methodology and statistical procedures to incorporate in a research study. Also, anxiety may be lessened if the researcher has a working knowledge of the publication process of refereed research journals. A faculty member's working environment is also believed to contribute to the level of research anxiety encountered in higher education. The implementation of a formal research mentoring program as well as the promotion of collaboration in research endeavors could lessen the impact of research anxiety on faculty members. Relevant studies regarding faculty productivity point out that certain demographic variables may also contribute to heighten levels of stress in higher education. These variables include gender, rank, teaching experience, degree held, and the age of the faculty member.

Summary of the Theoretical Model

The theoretical model for this study identified 'research anxiety' as the dependent variable and professional environment, educational preparation, and selected demographic characteristics as independent variables. Due to the exploratory nature of the study, the researcher believed that research anxiety would be enhanced by faculty members' perceptions concerning their present working atmosphere in regard to departmental and peer support for their research endeavors. Also, it was believed that the faculty members' educational preparation during their graduate experience would increase or decrease stresses associated with scholarly research. If one was introduced to the research and publication process as a graduate student, it could negatively or positively affect the amount of research anxiety encountered when employed in a higher education position. The last independent variable incorporated selected demographic characteristics thought to affect anxiety regarding scholarly productivity. These demographic characteristics were gleaned from the relevant literature and included; gender, age, rank, degree, years in higher education, type of contract, and teaching experience regarding research methods and statistics.

The level of success in higher education may be decreased or limited by anxiety caused when a faculty member is not confident in his/her ability to construct and carry out meaningful, accurate research (Seiler & Pearson, 1985). This anxiety toward research productivity may manifest itself in the graduate program of the prospective faculty member, be an inherent personal characteristic, or may be enhanced in a departmental atmosphere that does not encourage collaboration in research affairs or

condone a mentoring program for junior faculty. Understanding where research anxiety originates and how it is generated during the professional experience of a faculty member could provide pertinent information for administrators to better prepare and support potential and present faculty members in the area of research.

Summary of the Literature Review

The relevant literature found on the subject of research anxiety was minimal, so the researcher extracted information from studies that focused on faculty productivity in higher education and studies regarding specific areas of anxiety in education such as math and statistics anxiety, library anxiety, computer anxiety, administrative anxiety, and performance anxiety. Though there were no direct ties, in the literature, among any of these types of anxiety and research anxiety, all types mentioned could have a relationship with research procedures.

The literature makes a clear statement that anxiety is indeed present in higher education and there are several reoccurring variables that either breed or increase anxiety levels of faculty members. Scholarly productivity and pressure to publish are factors that directly relate to anxiety on university campuses (Astin, 1991; Austin & Pilat, 1990; Benjamin & Walz, 1987; Burden, 1982; Burns, 1992; Crase 1980; Dodge, 1982; Ferguson, 1981; Gertrude, Rosevear, Trice, & McKinnon, 1996; Gmelch, 1996; Grant, 1991; Keinan & Perlberg, 1987; Marcy, 1996; Perlberg & Kremer, 1988; Richard & Krieshok, 1989; Seiler, 1985; Smith, 1995; Thompson & Dey, 1998). Though these studies name faculty productivity as a stressor, there is very little in the literature that explains why there is so much anxiety related to scholarly research. Is there a systematic

approach that can be used to ease the amount of stress related to scholarly productivity? The literature suggests that mentorships be established between senior and junior faculty members. The problem here is that researchers report in the literature that faculty members already feel the pinch of time restraints placed on them by juggling research, teaching, and service assignments (Garofolo & Hansmann-Ferguson, 1994; Schnell & Dates, 1993). The relevant literature enabled the researcher to accumulate enough clues to deduce factors that may affect the impact that research anxiety has on scholarly productivity of faculty members in higher education. Those areas included the current professional environment, the educational preparation received during the graduate experience, and selected personal characteristics.

Summary of the Methodology

A sample of 156 faculty members was randomly drawn from a frame of 340 faculty members employed at UCWHRE universities. The survey was developed through an in-depth synthesis of the relevant literature. The survey was submitted to a panel of experts and subsequently subjected to a pilot test to analyze and confirm face and content validity. The survey included four sections. The first section contained the primary scale of the study, The Higgins-Kotrlik Research Anxiety Inventory, which is a Likert type scale constructed to determine faculty members' perceptions regarding research anxiety. The second section of the survey also contained a scale, The Professional Environment Inventory, which examined the research atmosphere of the current department in which the participants were employed. The third section contained the last scale, The Educational Preparation Inventory. This scale examined the graduate

experience of the faculty member. The fourth and final section of the survey contained questions regarding selected demographic characteristics of the faculty members. The data analysis was conducted using frequencies, percentages, means, standard deviations, correlations, *t*-tests, Cronbach's *Alpha*, factor analyses, and step-wise regression, as appropriate.

Summary of the Findings

The pilot test confirmed the face and content validity of the instrument. Of the 156 faculty members in the study, 105 responded to the questionnaire equating to a 67% return rate. Ninety-six responded via mail and eight others responded to the telephone follow up. There were no significant differences between the mail and telephone responses on The Higgins-Kotrlik Research Anxiety Inventory, The Professional Environment Inventory, and The Educational Preparation Inventory. Therefore, the data represented the UCWHRE faculty members and were combined for further analysis.

The Higgins-Kotrlik Research Anxiety Inventory was the primary instrument of the survey and was subjected to a factor analysis procedure. The procedure outlined five factors within The Higgins-Kotrlik Research Anxiety Inventory. The overall Cronbach's *alpha* reliability coefficient for The Higgins-Kotrlik Research Anxiety Inventory was .89. The *alpha* coefficient for The Professional Environment Inventory was .85, and The Educational Preparation Inventory had an *alpha* coefficient of .79.

The faculty members who participated in the study were for the most part male (70%) and half were full professors. The mean age was 52.33 (*SD* = 7.51) and all but one held a doctorate. Relationships between selected demographic characteristics and

The Higgins-Kotrlik Research Anxiety Inventory revealed moderate correlations with rank, the number of years employed in higher education, and experience teaching research methods courses. There was a low correlation between The Higgins-Kotrlik Research Anxiety Inventory and the presence of a formal research mentoring program within a department, age, and experience teaching statistics courses. There were negligible correlations between The Higgins-Kotrlik Research Inventory and gender, the number of tenure track faculty within the department, and the type of contract currently held by the faculty member.

The stepwise regression analysis with research anxiety as the dependent variable revealed that the faculty members' educational preparation, years employed in higher education, and professional environment explained 48% of the variance in the inventory. The other demographic variables did not enter the regression model.

Conclusions

The first objective of the study was to determine selected demographic characteristics (gender, age, rank, highest degree held) of university faculty members. The analysis of the sample ($N = 105$) yielded that the typical UCWHRE faculty member was male, held the rank of full professors, possessed a doctoral degree, and was 52 years old.

Objective two was to determine if research anxiety existed in university faculty members. This objective was accomplished via an examination of means and standard deviations of The Higgins-Kotrlik Research Anxiety Inventory. Most faculty members felt a need to improve both research and statistics skills regarding research in higher

education and were not confident when writing the findings to their studies. Faculty members also were not confident that their research is respected by their peers.

The third objective explored if significant correlations existed between the independent variables (educational preparation, selected personal characteristics, and professional environment) and the research anxiety of university faculty members. Moderate correlations between research anxiety and rank, research methods courses taught, and years of employment in higher education. Low correlations exist between research anxiety and whether the faculty member participated in a research mentoring program, the age of the faculty member, and experience teaching statistics courses. No correlations exist between research anxiety and gender, the number of tenure track faculty members within their department, and type of contract currently held.

Objective four was to determine if selected variables (educational preparation, personal characteristics, and professional environment) explain significant portions of variance regarding research anxiety in university faculty members. Educational preparation, professional environment, and years employed in higher education explain substantial amounts of variance found in research anxiety. No other variables studied explain research anxiety.

Implications and Recommendations

This exploratory study revealed that there is indeed anxiety in higher education with regards to scholarly productivity. The one factor solution of The Higgins-Kotrlík Research Anxiety Inventory revealed that all items loaded satisfactorily with the exception of item 8, "When reading research articles, I am apprehensive about being able

to synthesize the findings”, which minimally loaded. For future examinations using this scale, the researcher suggests either restructuring or deleting the item from the inventory. Data analysis suggested that research anxiety may be lessened by certain personal characteristics such as holding a higher rank at a university, years of experience in higher education, and advance in age. This implies that as a faculty member gains experience in higher education, the stresses of the research process lessen.

The professional environment and educational preparation proved to be significant contributors to research anxiety in the multiple regression procedure. This implies that the work culture of individual departments can either decrease or increase research anxiety by how administrations approach the scholarly productivity of their faculty. The presence of a formal mentoring program, as well as the promotion of collaboration with research projects seemed to decrease research anxiety. Those who perceived their graduate programs to prepare them for a position in higher education experienced less research anxiety. Administrations may want to ensure that graduate students are introduced to the publishing process and urged to take part in research projects during their graduate experience. The faculty members reported that they did not, for the most part, publish with other faculty members, other students, or on their own during their graduate experience. A better graduate preparation and a more collaborative friendly department may be two factors to consider when improving the scholarly productivity of faculty members.

Further Research

Future researchers may want to explore the perceptions of graduate students currently enrolled in research universities regarding scholarly productivity and the anxiety that accompanies it. Also, a closer look at perceptions of faculty members who have taken part in an official or unofficial research mentoring program compared to those who did not have this option may reveal the significance of mentoring new faculty members regarding research anxiety. Studying the correlations between publishing record and research anxiety may also prove instrumental in determining variables associated with research anxiety.

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APPENDIX: DATA COLLECTION INSTRUMENT AND LETTERS

AN EXAMINATION OF RESEARCH ANXIETY IN HIGHER EDUCATION

Section 1. The Higgins-Kotrlik Research Anxiety Inventory

Please circle one number for each statement to indicate the extent the statement describes you. For example, circle "1" if you strongly disagree with the statement or circle "5" if you strongly agree with the statement.

Research Anxiety Inventory	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. I produce research that is respected by my peers.	1	2	3	4	5
2. I am confident when stating the purpose and objectives of a study to be published in a refereed research journal.	1	2	3	4	5
3. I am confident when synthesizing a theoretical base of a study to be published in a refereed research journal.	1	2	3	4	5
4. I am confident when preparing a research methodology of a study for possible publication in a refereed research journal.	1	2	3	4	5
5. I am confident when conducting the data analysis of a study for possible publication in a refereed research journal.	1	2	3	4	5
6. I am confident when writing the findings for a research study.	1	2	3	4	5
7. I am confident when writing the conclusions of a study for possible publication in a refereed research journal.	1	2	3	4	5
8. When reading research articles, I am apprehensive about being able to synthesize the findings.	1	2	3	4	5
9. When I conduct research, I worry about the possibility of the manuscript not being accepted for publication.	1	2	3	4	5
10. When I conduct research, I worry about the possibility of using incorrect data analysis.	1	2	3	4	5
11. It bothers me that my research may not be judged as quality work.	1	2	3	4	5
12. When working on a research project, I experience anxiety.	1	2	3	4	5
13. When I conduct research, I fear that it is poor compared to others in my field.	1	2	3	4	5
14. I often feel uncomfortable when discussing research methods.	1	2	3	4	5
15. I need to improve my research skills.	1	2	3	4	5
16. I need to improve my statistical skills.	1	2	3	4	5
17. I would (or do) have difficulty reviewing manuscripts for refereed research journals.	1	2	3	4	5
18. It bothers me that my research may not be judged as acceptable by reviewers for research journals.	1	2	3	4	5

Section 2. Professional Environment of Research Opportunities

Please circle one number for each statement to indicate the extent the statement describes you or your department. For example, circle "1" if you strongly disagree with the statement or circle "5" if you strongly agree with the statement.

Professional Environment Inventory	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. My department places too much emphasis on research.	1	2	3	4	5
2. My department places too much emphasis on publishing in refereed research journals.	1	2	3	4	5
3. My department places too much emphasis on teaching.	1	2	3	4	5
4. My department promotes collaboration on research projects with other faculty members <u>within</u> my department	1	2	3	4	5
5. My department promotes collaboration on research projects with other faculty members <u>outside</u> my department	1	2	3	4	5
6. My department discourages collaboration on research projects with other faculty members <u>within</u> my department	1	2	3	4	5
7. My teaching load often makes it difficult to find time for conducting research projects.	1	2	3	4	5
8. My department offers desirable teaching assignments as a reward for publishing in refereed research journals.	1	2	3	4	5
9. My department adequately finances my research agenda.	1	2	3	4	5
10. My department provides travel money to support my research and publishing endeavors.	1	2	3	4	5
11. My department has asked me to serve as a research mentor for new faculty.	1	2	3	4	5
12. My peers recognize my efforts to publish in refereed research journals.	1	2	3	4	5
13. My peers support my efforts to conduct research.	1	2	3	4	5
14. My university administration recognizes my efforts to publish in research journals.	1	2	3	4	5
15. My university administration supports my efforts to conduct research.	1	2	3	4	5
16. My department encourages collaboration when publishing refereed journal manuscripts.	1	2	3	4	5
17. A senior faculty member has served as a research mentor to me.	1	2	3	4	5
18. I involve students, as co-researchers, in my efforts to publish in refereed research journals.	1	2	3	4	5

Section 3. Educational Preparation

Please circle one number for each question to indicate the extent the statement describes you or your department. For example, circle "1" if you strongly disagree with the statement or circle "5" if you strongly agree with the statement. **Please rate the following questions as to your perceptions upon completing your graduate program.**

Education Preparation Inventory		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1.	My research methodology skills were adequate for success in Higher Education.	1	2	3	4	5
2.	My statistics skills were adequate for success in Higher Education.	1	2	3	4	5
3.	My mathematics skills were adequate for success in Higher Education.	1	2	3	4	5
4.	My computer skills were adequate for success in Higher Education.	1	2	3	4	5
5.	My presentation skills were adequate for success in Higher Education.	1	2	3	4	5
6.	My library skills were adequate for success in Higher Education.	1	2	3	4	5
7.	My doctoral committee chair was a highly respected researcher in his/her field.	1	2	3	4	5
8.	My doctoral committee chair adequately advised students on research projects.	1	2	3	4	5
9.	My doctoral committee chair encouraged me to publish research in peer reviewed journals.	1	2	3	4	5
10.	My doctoral committee chair collaborated with me on publishing research manuscripts.	1	2	3	4	5
11.	My doctoral committee chair was a prolific publisher.	1	2	3	4	5
12.	I published research in peer reviewed journals with other faculty members during my graduate course work.	1	2	3	4	5
13.	I published research in peer reviewed journals with other students during my graduate course work.	1	2	3	4	5
14.	I published research in peer reviewed journals on my own during my graduate course work.	1	2	3	4	5

Section 4. Demographic Information

Instructions: Please check the appropriate response or provide the appropriate information in the blanks provided.

1. What is your current academic rank?
____ Instructor/Lecturer ____ Assistant Professor
____ Associate Professor ____ Professor ____ Other Please specify: _____
2. Please indicate, the percentage of your time that your university allocates for the following:
Teaching ____% Research ____% Service ____% Other ____%
3. Does your department use a formal research mentoring program for new faculty?
____ Yes ____ No
4. What is your current age? ____ (years)
5. Please indicate your gender. ____ Female ____ Male
6. How many tenure track faculty are in your department? ____
7. Do you hold a 9 or 12 month contract? ____ 9 Month ____ 12 Month
____ Other Please specify: _____
8. Please indicate the highest degree completed:
____ Master's Degree ____ Ed.D. ____ Ph.D. ____ Other Doctoral Degree
9. Do you teach a research methods course? ____ Yes ____ No
10. Do you teach a statistics course? ____ Yes ____ No
11. How long have you held a position in higher education as a(n) (Instructor/Lecturer, Assistant Professor, Associate Professor, Full Professor, or other professional appointment)? ____

Please answer the following questions (12-16) for the past five years.

12. How many single authored articles have you published in refereed research journals? ____
13. How many co-authored articles have you published in refereed research journals in which you were the lead author? ____
14. How many co-authored articles have you published in refereed research journals in which you were not the lead author? ____
15. How many single authored research based papers have you presented? ____
16. How many co-authored research based manuscripts have you presented? ____

Please use the space below to suggest improvements regarding this instrument.

THANK YOU!

Please return to:

Chadwick C. Higgins

Louisiana State University

School of Human Resource Education and Workforce Development

February 10, 2001

Subject: Research Anxiety

Scholarly research productivity is seen by many university administrations as paramount in making decisions regarding the promotion and tenure status of faculty members. The review of relevant literature has demonstrated that faculty anxiety levels have increased due to the prominence associated with research and publishing in higher education. You are one of a small group that has been selected to participate in this study of the research anxiety of faculty members employed in departments at universities that are members of the University Council for Workforce and Human Resource Education. This study seeks to explore the specific area of research anxiety and provide empirical evidence to explain the factors that are related to research anxiety of faculty members in higher education. The study examines graduate preparation, professional environment, and personal characteristics, and selected demographics of faculty members in higher education.

This research project is a dissertation in partial fulfillment of the requirements for the degree of Doctor of Philosophy at the Louisiana State University and Agricultural and Mechanical College. The results of this study will be used to improve terminal degree training environments, research skills, and organizational support. These findings will be useful for faculty, doctoral students, and administrators in higher education.

Please turn to the back of this page and complete the brief survey. This survey should not take more than 10-15 minutes. I have enclosed a self-addressed stamped envelope. Please complete the survey and return it by ____ Your privacy will be kept throughout this process and your responses will be kept confidential and destroyed as soon as the response can be tabulated.

THANK YOU for your time and help in completing this research. If you have any questions or concerns please contact me at 225.578.3679 or by e-mail at chiggi2@lsu.edu.

Sincerely,

Chadwick Higgins
Doctoral Candidate

January 4, 2001

Subject: Research Anxiety

This letter is a simple reminder of the importance of this research study. Please take ten minutes and fill out this survey and return it in the self addressed stamped envelope enclosed in this packet. Your expert input is needed. Scholarly research productivity is seen by many university administrations as paramount in making decisions regarding the promotion and tenure status of faculty members. The review of relevant literature has demonstrated that faculty anxiety levels have increased due to the prominence associated with research and publishing in higher education. You are one of a small group that has been selected to participate in this study of the research anxiety of faculty members employed in departments at universities that are members of the University Council for Workforce and Human Resource Education. This study seeks to explore the specific area of research anxiety and provide empirical evidence to explain the factors that are related to research anxiety of faculty members in higher education. The study examines graduate preparation, professional environment, and personal characteristics, and selected demographics of faculty members in higher education.

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Chadwick Higgins
Doctoral Candidate

VITA

Chadwick C. Higgins, is the son of Charles E. Higgins and Cherry M. Higgins. He was born in Pine Bluff, Arkansas in 1966. Chad grew up in Pinebergen, Arkansas and graduated from Pine Bluff High School in 1985. He married Dell Higgins formerly, Dell Walter. Chad received his bachelor's degree in History from Lyon College in May, 1990. After completing his undergraduate work, Chad lived in Atlanta, Georgia and on St. John, USVI, where he worked as a carpenter. He received his master's of secondary education with a focus on teaching social studies from the University of Arkansas at Little Rock in July of 1998.

Chad is a member of the Gamma Sigma Delta Honor Society and the Omicron Tau Theta Honor Society. His professional career started as a social studies teacher at St. Joseph's Junior High School in 1996. In 1998, Chad returned to school to pursue his doctorate in the School of Vocational Education Louisiana State University, and will receive the degree of Doctor of Philosophy. He is currently serving as an Assistant Professor within the College of Education at Idaho State University.

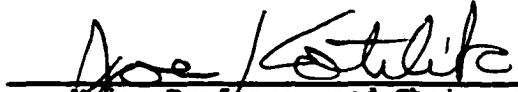
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Chadwick C. Higgins

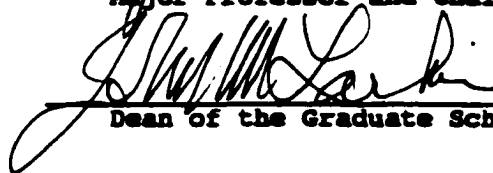
Major Field: Vocational Education

Title of Dissertation: Factors Associated with Research Anxiety of
Human Resource Education Faculty in
Higher Education

Approved:




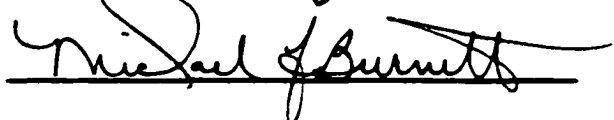
Major Professor and Chairman




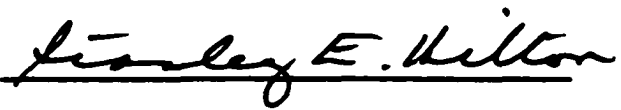
Dean of the Graduate School

EXAMINING COMMITTEE:









Date of Examination:

15 June 2001